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CHILDREN

SHUTTLEWORTH & POTTS



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MENTALLY DEFICIENT CHILDREN

THEIR TREATMENT AND TRAINING

BY

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FIFTH EDITION

LONDON

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TO THE MEMORY OF
THE TRULY ILLUSTRIOUS
EDOUARD SÉGUIN, M.D.
WHO FOR FORTY-TWO YEARS,
BOTH IN THE OLD WORLD AND THE NEW,
PRACTICALLY AND WITH HIS PEN
LABOURED TO IMPROVE THE CONDITION OF
MENTALLY DEFICIENT CHILDREN
BY THE
APPLICATION OF PHYSIOLOGY TO EDUCATION;
THIS BOOK IS INSCRIBED.

“ He loved others better than himself.”



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PREFACE TO FIFTH EDITION

OUR publishers having urged upon us the desirability of republication of this little work, for which, notwithstanding the exhaustion some time ago of the Fourth Edition, they continue to have frequent inquiries, we have revised the last issue so as to bring it more up to date. Although the Great War and the consequent financial stringency have seriously interfered with the carrying out as completely as could be desired of the provisions of the Mental Deficiency Act, 1913, considerable progress has been made in this direction, as will appear from the more recent information supplied in this book. More extended provision for the care of the Defective Class has also been made in the United States of America and in the British Overseas Dominions, notably in South Africa, where a comprehensive Mental Disorders Act, including in its scope the classes of congenital defectives, moral imbeciles, and epileptic deviates, was passed in 1916.

Some additions to the text relating to mental tests, psycho-therapy, and criminal procedure will be found in the present edition, and a few changes have been made in the illustrations. We have again

to acknowledge the kind aid of various official bodies in supplying information as well as of several medical colleagues, amongst whom we may specially mention the names of Dr. Walter E. Fernald, Superintendent Massachusetts School for the Feeble Minded; Dr. J. M. Murdoch, Superintendent State Institution, Polk, Pennsylvania; Dr. Kuhlmann, Faribault, Minnesota; Dr. H. H. Goddard, Director of Ohio Bureau of Juvenile Research (late of the Vineland Institution, N.J.); Dr. E. G. Dru Drury, Grahamstown, S.A.; and Dr. W. H. Coupland, Medical Superintendent of the Royal Albert Institution, Lancaster. Our thanks are also again due to Miss Ethel Dixon for her valuable services in revising the index.

G. E. S.

W. A. P.

October, 1921.

PREFACE TO FIRST EDITION

IN offering this little Manual to the Medical Profession, and to the increasing number of the Public who take an interest in the special education of mentally deficient children, the author trusts that the experience acquired by the proverbial "quarter-of-a-century's" successive residence in two of the largest Training Institutions for Imbeciles may aid him in setting forth both the salient peculiarities of the class and the ameliorative measures found most useful. He does not profess to bring forward much that is new, but rather to collect and mould into book form various papers published by him during the last twenty years in Medical Journals and the Proceedings of Societies.

In the present volume, the pathology of the subject is only touched on to supply a few practical hints which may be of service to the medical man in his diagnosis, prognosis, and recommendations, when consulted in the case of a mentally feeble or deficient child. Though his standpoint is that of the physician, and not of the teacher, the author hopes that his observations upon special educational methods, based as they are upon physiological principles, may not be

without value to those engaged in the practical work of instruction. For the successful training of the mentally deficient child, the physician and the teacher must go hand in hand; and it will be a satisfaction to the author if in some slight degree this book realizes the aspirations of Séguin, who was both. "Let us physicians," he says (in the course of an address to a New York Medical Society), "help to build the programme of physiological education already sketched in the School for Idiots. . . . The demonstration therein given is that the physiological education of the senses is the royal road to the education of the intellect; experience, not memory, the mother of ideas."

G. E. S.

May, 1895.

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MENTALLY DEFICIENT CHILDREN

THEIR TREATMENT AND TRAINING

CHAPTER I

HISTORICAL RETROSPECT

EIGHTY years have now passed since serious efforts were first made to improve the condition of the mentally deficient child. Séguin, at the Bicêtre Hospital in Paris, gave the first impetus to scientific work having for its object (in the words of Esquirol) "the removal of the mark of the beast from the forehead of the idiot." Some such efforts had indeed been previously made in France by Itard, Voisin, Esquirol, and others; and the experiments of Itard on the boy found running wild in the woods of Aveyron (*le sauvage de l'Aveyron*), of which he published an account in 1801, contributed to an understanding of congenital defects of mind. In 1837 Séguin, an old pupil of Itard and Esquirol, essayed to instruct an idiot child, and after gaining experience and successful results at the Hospital for Incurables, was appointed in 1842 to apply his method to the education of the idiot children of the Bicêtre. About the same date, Dr. Saegert, in Berlin, and Dr. Guggenbühl, in Switzerland, independently took in hand the treatment of mentally feeble children. The success of the work of Guggenbühl, in improving the condition of cretins by removing them from sequestered and

shadowed Alpine valleys to the sunshine of the summit of the Abendberg, made a great impression on philanthropists in Europe and America, and demonstrated, as by an object-lesson, the interdependence of physical and mental amelioration. Saegert seems to have laboured somewhat on the lines of the instruction he had been accustomed to give to deaf-mutes, with such adaptations as were necessary to the case of imbecile children. The school he established is still carried on in Berlin, though with the disadvantage of being organised as a department of a lunatic asylum. By a curious coincidence, occurring almost simultaneously in France, Switzerland, and Germany, independent efforts were inaugurated for the benefit of the mentally defective class; and the year 1842 must be looked upon as an epoch memorable in this matter. Although Séguin is entitled to the credit of priority, he himself modestly avers that "at certain times and eras the whole race of man, as regards the discovery of truth, seems to arrive at once at a certain point, so that it is hard to say who is the discoverer." In 1843, however, the illustrious Voisin publicly recognised the work and merits of Séguin. His prognostications that Séguin would "be entitled by his psychological contributions to take a distinguished place among his contemporaries" were justified by the publication, in 1846, of Séguin's *magnum opus* entitled "Traitement moral, Hygiène et Éducation des Idiots et des autres Enfants Arriérés." This book may indeed be regarded as the *magna charta* of the mental emancipation of the imbecile class.*

* For further particulars as to Séguin, the reader is referred to a recent excellent work, *Séguin and his Physiological Method of Education*, by Henry Holman, M.A. London: Sir Isaac Pitman and Sons, 1914. 5s.

Defining idiocy as an "infirmity of the nervous system, which has for its effect the abstraction of the whole or part of the organs and the faculties of the child from the normal action of the will," he proceeds to divide all cases into two principal classes, those of profound, and those of superficial idiocy. The basis of the treatment he proposes is almost identical with that described in later works as **physiological education**. Starting with the axiom that "The education of the senses must precede the education of the mind," he argues that the true physiological method of tuition for persons whose nervous system is imperfectly developed is (1) "to exercise the imperfect organs so as to develop their functions," and (2) "to train the functions so as to develop the imperfect organs." Ingenious devices are described whereby the sense-organs may be exercised, and cases are given in which such exercises have been adapted to special incapacities.

In Great Britain interest had been aroused by the publication, in 1843, of an account by Dr. William Twining of what he had witnessed at Guggenbühl's Institution on the Abendberg. This led to the establishment, in 1846, of a small school for imbeciles at Bath, under the management of the Misses White, subsequently carried on as a benevolent establishment by Miss Heritage. This has now developed into the Rock Hall House (Magdalen Hospital) School, Combe Down (with thirty-eight imbecile children), under the management of the Trustees of the Municipal Charities of Bath. It is a matter of archæological interest to note that this Institution owes its establishment in 1891 to an Order of the Charity Commissioners amalgamating the school above referred to with an ancient charity founded in the twelfth

century as a leper hospital in connection with the Priory Chapel of St. Mary Magdalen, Bath. Probably, as the demand for the accommodation of lepers diminished, lunatics and idiots took their place. Thus the Bath Institution may claim, by right of succession, to be the most ancient foundation in Great Britain for these mental defectives, and it is on record that "idiots" were in residence at the Magdalen Hospital early in the eighteenth century. Articles by Mr. Gaskell (afterwards a Lunacy Commissioner) and Dr. Conolly (the enlightened Superintendent of Hanwell Asylum) upon the work of Séguin at the Bicêtre, which appeared in 1847, led to further developments in England, and in 1848, Park House, Highgate, the mother institution of Earlswood and of the Eastern Counties Asylum at Colchester, opened its doors for the treatment and training of idiots and imbeciles, Dr. Conolly and the Rev. Dr. Reed acting as its gratuitous secretaries.

Meanwhile the New World was closely treading upon the heels of the Old in the march of progress in the education of imbeciles. Early efforts had been made in the most progressive of the United States to benefit idiots by training them in connection with special schools for the deaf and for the blind; but Massachusetts was the first to move in specific provision for this class by appointing "Commissioners to inquire into the condition of idiots in the Commonwealth, to ascertain their number, and whether anything can be done for their relief." Dr. S. G. Howe, well known as the successful instructor of the blind deaf-mute, Laura Bridgman, was the Chairman of this Commission. Their Report, issued in 1848, with elaborate statistical tables, led to a grant by the Legislature of 2,500 dollars for the

establishment of an "experimental school for feeble-minded children"; and about the same time a private school was opened at Barre, Mass., by Dr. H. B. Wilbur, being "designed for the education and management of all children who by reason of mental infirmity are not fit subjects for ordinary school instruction." In 1851 an "experimental school" was started by the State of New York; this developed into the State Asylum at Syracuse, over which Dr. H. B. Wilbur long and ably presided.

After his decease, in 1883, the "Syracuse State Institution for Feeble-minded Children" (as it is now designated) was directed by Dr. J. C. Carson, who resigned in 1912 "after twenty-seven years of diligent and efficient service," and was succeeded by Dr. O. H. Cobb; the Institution now has 607 inmates. "Of State institutions for the feeble-minded in America, this alone is a school exclusively for boys and girls of the higher grades." "Custodial care for the less hopeful cases is not a part of the work." This, however, is provided by the State of New York in the asylums at Rome and at Newark.

Pennsylvania was the next to establish a "Training School for Feeble-minded Children." Taking up the private enterprise of Mr. J. B. Richards, a State-aided charity was formed, in 1853, which, under its late Superintendent, Dr. Isaac Kerlin, and his assistant and successor, Dr. Martin Barr, has become (at Elwyn), a model village for the feeble-minded, of whom there are in residence 502 boys and 436 girls, the total capacity being about 1,100.

The State of Ohio provided for her feeble-minded children in 1857; the Institution at Columbus, with its splendid stock-farm, is appointed on a liberal scale, and contains nearly 2,300 inmates under the

care of Dr. Emerick, the successor of Dr. Doren, who for over thirty years wisely directed its development.

Connecticut, Kentucky, and Illinois, were also early in the field, and established State Institutions for the feeble-minded between 1855 and 1865. It is noteworthy that all the early American Schools were organised on educational lines, the imbecile institution being regarded (in the words of Dr. Howe) "as a link in the chain of common schools—the last indeed, but still a necessary link to embrace all the children in the State."

The influence of Séguin, who, after migrating from Paris to the United States in 1850, was associated with the organisation of several of the early American Institutions, inspired enthusiasm in the educational work, and perhaps a somewhat exaggerated belief in its possibilities. The sanguine views, however, put forth in some of the early Reports gradually sobered down with experience, and in 1872 Dr. Wilbur set forth to his Trustees in clear language the limitations inevitable in cases of original defect. "The same limitations" (he writes) "hold here as in any other system of education. These depend upon the individual capacities of the pupil. Now and then one of the pupils absolutely passes from the condition of idiocy, and leaves the Institution capable of caring for himself thereafter. These are the exceptions; the rule is otherwise. Ordinarily, the highest aim of the training is to send out the subject of it, at the end of the course, so improved as to be capable of some useful occupation, under intelligent direction."

He pointed out that these conditions involve the necessity of supplementary *custodial* institutions, and from this time forward this consideration seems to have been more or less kept in mind in the provision of State care for the feeble-minded.

In 1898, according to Dr. F. M. Powell's Report to the National Conference of Charities and Correction, there existed twenty-four public institutions for this class, maintained by nineteen States, and one by the city of New York. A statement which appeared in an American philanthropic journal, *The Survey*, in 1912 showed that in all but eighteen of the States of the Union some public provision of a residential character had then been made for the mentally deficient class, and that about 25,000 in the aggregate were accommodated, as compared with 8,492 in 1898. By 1917 all but four of the States were making some institutional provision, and the number accommodated was 37,220. This total was made up of 31,361 in State Institutions, and 3,043 in other public institutions, while 2,816 were in private institutions. For this information we are indebted to an article written after special inquiry by Dr. Pollock and Miss Furbush in *Mental Hygiene* for October, 1917.

In addition 10,394 epileptics (not included amongst insane or feeble-minded) were cared for in public institutions, and 407 in private establishments. Dr. Fernald, in a comprehensive article on "The Growth of Provision for the Feeble-minded in the United States" in *Mental Hygiene* for January, 1917, showed that in the twenty-five and a half years from June, 1890, to January, 1916, the number of feeble-minded and epileptic persons under care in public institutions in the United States had risen from 4,001 to 34,137, or an increase of 753 per cent.* During the same period the increase in general population of the United States was 62 per cent. This does not mean that feeble-

* A later return published in *Mental Hygiene* for January, 1919, gives the number in public institutions in January, 1918, as 36,277, and states there were in addition 3,104 in private institutions.

mindfulness and epilepsy were increasing enormously in comparison with the general population. The increase "is really an index of the lack of appreciation on the part of former generations of the great part played by mental deficiency in dependency, crime, and delinquency."

This statement does not include private schools or the special (day) classes established in some of the cities. It would appear, from the Vineland Training School Report for 1918, that 250 cities have established 1,600 special classes for mentally subnormal children.

In 1919 the State of New York took a great step forward by passing the Mental Deficiency Law, which came into force on July 1, 1919. This Act of forty clauses compares favourably with ours, which, in its five years of operation, has presented some difficulties. Those who framed it had a simpler, yet broader, concept of mental defect. The definition of a mental defective, and the conditions bringing him under the law are combined in one clause:—"Mental defective means any person afflicted with mental defectiveness from birth or from an early age to such an extent that he is incapable of managing himself and his affairs, who, for his own welfare or the welfare of others or of the community, requires supervision, control, or care, and who is not insane or of unsound mind to such an extent as to require his commitment to an institution for the insane as provided by the insanity law." An important innovation is the regulation that one of the two certificates required for detention may be given by a "psychologist." The defective and his friends have a right of appeal against the order for detention. The person who presents the petition has also a right of appeal against a decision of the judicial authority

not to make an order. In both instances the appeal comes before a jury. Another difference from our own Act is that there is no time limit to the detention order. The defective is safeguarded by being entitled to a writ of *Habeas Corpus* upon a proper application made by him or some friend on his behalf. An inmate of an institution may be permitted to leave on parole, in which case the parent or relative responsible must report regularly on his physical, moral, and mental condition, while the defective must be accessible to the parole agent of the institution. There are satisfactory arrangements for criminal and emergency cases, and also for voluntary admission. Some of the duties delegated in England to the Local Authority are carried out by the State Commission for Mental Defectives.

In our own country slow progress has been made in providing out of public funds institutions exclusively for the mentally defective. Those of the Metropolitan Asylums Board, affording accommodation for about 7,000 adult imbeciles and harmless lunatics and 1,500 children, have been in existence for upwards of fifty years under the Metropolitan Poor Act of 1867. Of recent years there has been considerable development in their establishment at Darenth, which, originally a school for children and a custodial home for adults, has become a model Industrial Colony with over 2,000 inmates (improvable imbeciles and feeble-minded), where handicrafts of various kinds are successfully carried on with considerable financial success. Unimprovable juveniles and adult imbeciles are received at Leavesden and Caterham, and idiot children at the Fountain Temporary Asylum. Elsewhere attempts have been made by various Guardians of the Poor to form special

establishments apart from workhouse accommodation for imbeciles and feeble-minded falling under their charge. The most notable example of a provincial Poor Law Institution is that originally provided by a combination of the Birmingham, Aston, and King's Norton Guardians at Monyhull in 1908; the present establishment, now under "the Greater Birmingham" Board of Guardians, is known as the Monyhull Colony for sane epileptics and feeble-minded persons chargeable to the Board. On an estate of 185 acres 252 adult inmates were originally provided for in several separate houses; extensions have brought up the accommodation to 12 homes for an aggregate of 504 adults, and 8 homes for 76 epileptic and 270 feeble-minded children, 230 of the latter to be maintained by the Education Committee of Birmingham. A school with 300 places, workshops, and laundry is also to be provided. The War caused delay in the actual building, and much of the accommodation when ready was handed over to the War Office, so that it has been impossible to utilise all the beds, especially as some are still retained by the Ministry of Pensions. At the colony 100 beds are reserved for cases sent under certificate by the Birmingham Committee for the care of the Mentally Defective, while 10 places are filled by the Smethwick Local Authority. Since the passing of the Mental Deficiency Act no less than 161 Poor Law Institutions throughout the country have been approved by the Board of Control under Section 37 of the Mental Deficiency Act for the accommodation of over 8,000 sufferers from various grades of mental defect. The financial strain of the Great War has, of course, prevented the adoption of more ambitious schemes by public authorities.

Considerable charitable enterprise has been shown

in the provision of residential establishments for the mentally defective. In addition to the six English voluntary Institutions for Idiots and Imbeciles—at Earlswood, Lancaster, Starcross, Colchester, Knowle, and Bath, which have been doing good work during more than half a century and now accommodate some 2,500 patients—the Sandlebridge Colony has some 300 residents, children and adults, and the Princess Christian Farm Colony near Tonbridge 136. No less than 67 certified institutions are now recognised by the Board of Control, founded either by benevolent associations or Local Authorities in England and Wales with an aggregate accommodation for about 7,000 patients; but as a detailed list will be found in Appendix A, it seems unnecessary to refer here to further instances. It may be of interest, however, to call attention to the series of establishments ("National Institutions for Persons requiring Care and Control") which have been provided, for about 2,000 mentally defective children and adults, as well as to the activity displayed by the Roman Catholic Authorities in provision for defectives. In 1917 the Archdiocese of Birmingham established a beautifully appointed institution at Besford Court, Worcestershire, as a special boarding school for 73 boys and 46 girls. In 1918 the Liverpool Roman Catholic Diocesan Authorities opened Gillibrand Hall, Chorley, for 40 feeble-minded girls and women. In the same year the Westminster Diocesan Education Fund Authorities provided Hillside, Buntingford for 40 male feeble-minded patients.

In addition to the inmates of certified institutions, about 300 cases are under private care in "certified houses" and a similar number in "approved homes," about 300 others being placed under guardianship

under the Act. If we also take into account the 15,500 children attending 199 special schools in England and Wales, it may be said that there is, in one way or another, provision for about 30,000 mental defectives in England and Wales.

The Board of Control have acquired, under the powers of the Act, premises at Farmfield, Horley, Surrey, for a State institution for 95 female defectives of dangerous or violent propensities, and have also established at Rampton, near Retford, a similar institution for 220 males and 80 females of the same type. In Scotland the institutions at Larbert, Baldovan, Bridge-of-Weir, St. Charles (Glasgow), Stoneyetts (Glasgow), Barnhill (Glasgow), Craiglockhart, Govan, and Kirkintilloch, provide for 1,477 inmates, while many of the feeble-minded class are boarded out under supervision. Special schools for defective children also exist in the larger cities with places for upwards of 2,000 pupils. In Ireland about 120 imbeciles are accommodated at the Stewart Institution near Dublin, which completed its Jubilee Year in August, 1919.

In the cursory survey of the provision made for mental defectives in Great Britain and in the United States it has proved impracticable to differentiate satisfactorily between that for children and for adults, or to state definitely the grade of mental defect of the inmates of the respective institutions. For the most part those in America have been designated Institutions for "Feeble-minded," and in Great Britain (until recently) "Asylums for Idiots and Imbeciles," though both have ministered to the wants of similar classes of patients. In America, however, the designation "Feeble-minded" has been used as a euphemism for all grades of mental defect,

including idiots, imbeciles, and the higher type to which the appellation *Mōron* (from *μωρός* = a foolish person) has of late years been applied by Dr. Goddard of the Vineland Institution, U.S.A. Though the English Education (Defective and Epileptic Children) Act of 1899 recognised a grade of children higher than imbeciles, as “mentally defective” so as to require special education, it was not until 1908 that the Royal Commission on the Care and Control of the Feeble-minded gave precision to the term by defining as *feeble-minded* “persons who may be capable of earning a living under favourable circumstances, but are incapable from mental defect existing from birth or from an early age (*a*) of competing on equal terms with their normal fellows; or (*b*) of managing themselves and their affairs with ordinary prudence.” This definition was, however, considerably modified in that adopted in the Mental Deficiency Act, 1913.*

In closing this historical retrospect it may be interesting to refer to certain investigations voluntarily undertaken towards the close of the nineteenth century, which drew public attention to the existence of a large class of exceptional children inadequately provided for in our elementary school system. In 1895 there was issued by an expert and representative committee, in which Dr. Francis Warner took a leading part, a “Report † on the Scientific Study of the Mental and Physical Conditions of Childhood; with particular reference to children of defective constitution; and with recommendations as to Education and Training.” This was based on the examination of 50,000 children seen in 1888-91, and of another 50,000 seen in 1892-94. Whilst 100,027 children

* See p. 26.

† To be obtained from the Childhood Society, Royal Sanitary Institute, Buckingham Palace Road, London, S.W. 1.

passed in groups under the eye of the medical examiner, the number of children individually noted and registered was 18,127, no note being taken of the 81,900 children not presenting obvious physical defect, or not reported by teachers as mentally dull. *Defects in development*,* such as abnormalities of cranium, of external ear, of eyelids, of palate, of nasal bones, and of stature, were noticed in 9,777 cases; *abnormal nerve signs*, such as defect in general balance, overacting frontals, corrugation,† defective eye movements, defects of balance of head or hand, finger-twitches and lordosis, together with deafness, defective speech, slow response, etc., were observed in 10,355 cases; *low nutrition* was registered against 3,522 children, who were pale, thin, or delicate; and 7,391 children were, on report of teachers, entered as *mentally dull*. Obvious *eye-defects* were noted in 2,929 cases: evidences of *rickets* (other than cranial) were registered in 244; 811 children were put down as "exceptional," including 2 idiots, 51 imbeciles, 275 children feebly gifted mentally, 19 "mentally exceptional" (moral imbeciles, etc.), 110 epileptics, 5 deaf-mutes, 374 children crippled, maimed, and paralysed. Elaborate tables were given showing the coincidence and co-relation of the various classes of defects. With the exception of "low nutrition," defective conditions were more common in boys than in girls; though when defects occur they are usually of more serious character in the case of the latter.

The general conclusion arrived at with regard to children that require special care and training was that the proportion varies from 1.6 per cent. of the first series of 50,000 cases to 0.88 of the second series of 50,000. Putting both series together, we get, for

* See Plate I., Figs. 1, 2, 3, 4. † See Plate I., Fig. 4.

PLATE I.

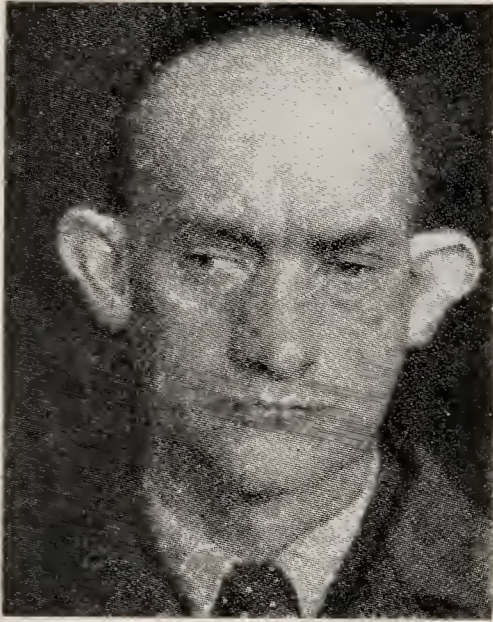


FIG. 1.—MISSHAPEN "MOREL" EARS:
CONGENITAL IMBECILE.

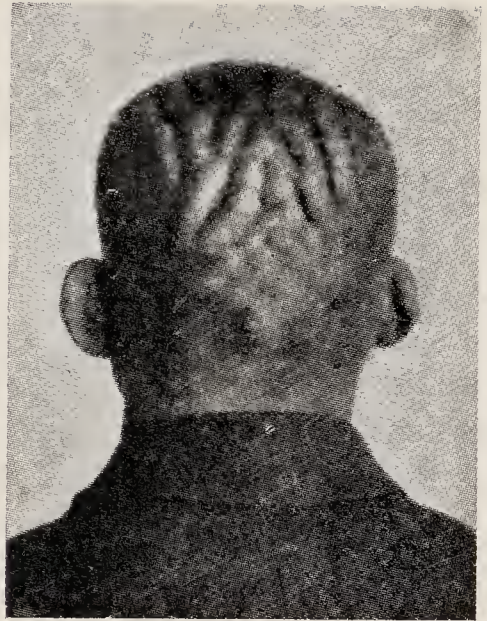


FIG. 2.—CONGENITAL IMBECILE
WITH CONVOLUTED SCALP.



FIG. 3.—EAR SHOWING DAR-
WINIAN TUBERCLE.

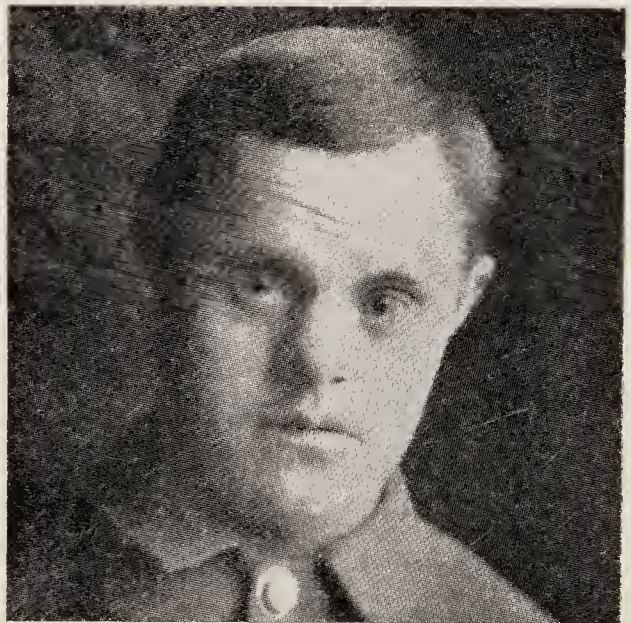


FIG. 4.—MONGOLIAN IMBECILE, SHOWING
FRONTAL CORRUGATION.

DEFECTS IN DEVELOPMENT.

From *Journal of Psycho-Asthenics*, vol. xi. (by kind permission of
Drs. Morehead Murdoch and A. C. Rogers).



the 100,000 cases observed, a percentage of 1·261 as requiring special instruction, but it must be remembered that this proportion includes 278 children on the score of physical defects only, without signs of mental dulness.

These figures correspond closely with the findings of the Royal Commission on the Care and Control of the Feeble-minded, who stated, in 1908, that "in England and Wales the number of mentally defective children may be expected to be, in the areas urban and rural, 0·79 per cent. of the number of children on the school registers, falling as low as 0·28 in a northern colliery district, and rising as high as 1·12 and 1·24 in urban areas."

The systematic application of physical observation to large masses of school-children shed much light upon educational problems which had hitherto been regarded too exclusively from the psychological standpoint. The medical inspection of elementary schools now established by law affords opportunity of extending similar observations. It has long been the practice in dealing with imbecile children to note in the Institution Case-books the physical as well as mental abnormalities of each. Séguin more than fifty years ago drew attention to the co-relation of such abnormalities, and in 1883 Dr. Shuttleworth published in the *Liverpool Medico-Chirurgical Journal* a paper on "The Physical Features of Idiocy," tracing the characteristic physical abnormalities coincident with certain special types of mental defect. These consisted mainly of what are termed by Dr. Warner developmental defects, but which are for the most part congenital, and usually of permanent significance. As regards the other conditions noted in Dr. Warner's Report, abnormal nerve signs, low nutrition, and

mental dulness may be of a more or less temporary character, and to a large extent influenced by surroundings, and consequently alterable by training. This consideration, whilst pointing to the value of such observations, also discloses a possible source of fallacy. A class of children accustomed to physical drill will show fewer "nerve-signs" than a class not so exercised, but it would be wrong to conclude that the *intellectual* standard of the former is necessarily superior to that of the latter. So again "low nutrition" may be the result of ill-feeding, or of constitutional defects. In both cases intellectual activity may be diminished; but the latter condition is more serious than the former. "Mental dulness," as reported by the teacher, is a varying quantity in proportion to the educational standard aimed at in the particular school, and also in view of the pupil's state of health at the time. The prudent medical examiner of children alleged to be defective will not allow himself to be swayed too much by any one class of observations, for it is only by comparing the signs of physical abnormality with those of mental defect, educational attainments being ascertained and weighed in the balance with those of similarly placed normal children of corresponding age, that a right judgment can be formed.

A comprehensive statistical inquiry, prompted by the Teachers' Associations of Switzerland, and conducted on pedagogical rather than physiological lines, was instituted by the Swiss Government in 1897, to determine the number of children of school age weak in mind (*faibles d'esprit*), those afflicted with physical infirmities, idiots, deaf-mutes, and blind; and finally those morally unfit for tuition in ordinary schools. The results tally closely with those obtained in Eng-

land by a more purely physical method. Out of 490,252 children of school age in Switzerland, 7,667, or 1.5 per cent., were returned as mentally feeble. This does not include the other categories mentioned above, one of which comprises "idiots," of the number of whom, however, we have no exact information. Altogether 13,155 children were returned as suffering from some degree of mental, physical, or moral infirmity. Of the 7,667 children returned as feeble-minded, it is stated that 567 already receive instruction in special classes, that 411 are in special establishments, that 104 are in orphanages or similar institutions, and do not require special treatment; whilst for 5,585 is demanded individual care in a special class or special institution, leaving 534 for whom this is not deemed necessary, and 466 on whom no opinion is given.* In March, 1907, there were recorded 29 resident institutions for feeble-minded children (*Geistes-schwache*), public and private, in Switzerland,† with 1,172 inmates, besides 67 special classes with 1,415 pupils and (in addition) 623 children specially instructed.

Dr. Rudolf Schwab‡ states that as a result of medical inspection in 21 cantons in 1907 of children who had attained school age, the following statistics were obtained: Defective children, 7,695; idiots, 41; slightly feeble-minded, 535; markedly feeble-minded, 144; moral defectives, 43; the rest being physically defective.

* "Resultats du Dénombrement des Enfants faibles d'Esprit en Âge de fréquenter l'École" (1^{er} partie), *Statistique de la Suisse*, 114^e livraison, Berne, 1897.

† *Verhandlungen der VI. Schweize. Konferenz für das Idiotenwesen*, p. 32.

‡ Kelynack's *Medical Examination of Schools and Scholars*, p. 414.

CHAPTER II

DEFECTIVE AND EPILEPTIC CHILDREN

PUBLIC attention having been called, largely through the non-official investigations referred to in the previous chapter, to the existence of a considerable class of children incapable of receiving education on conventional lines, the Lord President of Council (as chief of the Education Department) appointed in 1896 a Departmental Committee to inquire into the existing systems for the education of feeble-minded and defective children, "not idiots or imbeciles."

The Committee consisted of the Rev. T. W. Sharpe, C.B., then Her Majesty's Senior Chief Inspector of Schools; of Messrs. Pooley and Newton, of the Education Department; of Mrs. Burgwin and Miss Douglas Townsend; and of Prof. Wm. Smith and Dr. Shuttleworth; Mr. H. W. Orange acting as Secretary. They obtained information about the English institutions for idiots and imbeciles, and also with regard to the treatment of epileptics at the Maghull institution. They personally inspected the special classes in Leicester, London, Bradford, Brighton, and Bristol.

In consequence of their Report, an Act of Parliament, known as the "Elementary Education (Defective and Epileptic Children) Act," received the Royal Assent in 1899. This Act, which is permissive only, enables school authorities to obtain grants from public

money towards the education of defective and epileptic children, subject to "such conditions as may be directed by or in pursuance of the minutes of the Education Department in force for the time being."

Under the Regulations issued in 1907, children are not admitted to the special classes till five years of age, but the period of education for such children is extended until the age of sixteen years, and provisions are made for boarding out, when necessary, either in families or in certified schools, and for the school authority supplying, in cases requiring them, guides or conveyance. No requirement is made in the Act of 1899 as to the appointment of Medical Officers either by school authorities or the Education Department, but it is enacted that to bring a child within the purview of the Act "a certificate by a duly qualified practitioner, approved by the Education Department, shall be required in each case." The Education Act of 1907 has, however, since laid an obligation on all school authorities to "provide for the medical inspection of children immediately before, or at the time of, or as soon as possible after, their admission to a public elementary school." Parents may demand the examination of children with a view to their admission to special classes, and re-examination with a view to their transfer to ordinary classes in public elementary schools. Thanks to the Elementary Education (Defective and Epileptic Children) Amendment Act, 1903, the only restriction on boarding-schools is that the school must obtain the approval of the Board of Education.

The Departmental Committee estimated the number of "feeble-minded" children at 1 per cent. of the school population, an estimate which was afterwards shown by the investigations of the Royal Com-

mission on the Care and Control of the Feeble-minded to be fairly near the mark when taken over the whole country. This later Commission appointed medical investigators to conduct inquiries in nine selected areas, each with a total population of not less than 150,000. Their Reports showed that "the northerly districts of the Durham County and Hull stand best," and "the large urban areas come last." Thus, in a mining district in Durham County the proportion of mentally defective children to the total registered school population was 0.28, and in Hull and Sculcoates 0.40. The rural areas show a higher percentage, the figures being wonderfully uniform, with the exception of the Lincolnshire Unions, which, though rural, stand with the urban districts. Thus in Wiltshire the figure was 0.47, in Somerset 0.58, and in Nottinghamshire (partly rural) 0.60. With these rural areas stands Stoke-on-Trent. In Lincolnshire the figure was 1.10, leading up to the higher figures of 1.12 and 1.24 in Birmingham and Manchester respectively.

Epileptic Children.—The Departmental Committee estimated the number of epileptic children at 1 per 1,000, of whom one-sixth might be classed as severely afflicted. They recommended that epileptic children of normal intellect should be left in ordinary schools if the fits are not frequent, or violent fits do not occur in school, and that teachers be provided with instructions as to the treatment of children known to be epileptic. Feeble-minded epileptics may be received into special classes when the epilepsy is not severe; and for such cases it may be necessary to provide guides or conveyance between the home and the school. With regard to severe cases, whether mentally feeble or otherwise, treatment in residential

homes is essential, proper classification being provided. It was recommended that school authorities should have power both to provide homes and to contribute to voluntary homes which conform to the conditions laid down.

The result of these recommendations was that the Act of 1899 gave power to school authorities to establish residential schools for epileptics. It did not however, give power to board out or to establish special day-schools for epileptics. For epileptics the Board of Education certify boarding-schools only.

Two drawbacks attending the Act were the fact that no legislative action was taken on the Committee's suggestion that the certificate excluding a child from a special class on account of imbecility should admit such child to an institution for imbecile children, and the fact that no provision was made for "after-care" on leaving school. This latter omission did much to nullify the good effected by special classes, even if it did not do worse. In the opinion of many, education for a few years, without subsequent control, is a dangerous experiment, increasing as it does the capacity, and in the case of some girls the attractiveness, of ill-balanced and abnormal individuals, who ought to be always under supervision. The great disadvantage of the 1899 Act was that it was merely permissive; the amending Act of 1914, however, has made the provision of suitable special education, by means either of day-schools or residential establishments, the duty of all education authorities.

As all investigations demonstrated more and more clearly that the feeble-minded constitute an important section of the community, and that many of them require care during the greater part, if not the

whole, of their lives, a Royal Commission was appointed, in September, 1904, to investigate the whole problem. The original reference was extended in November, 1906, "to inquire into the constitution, jurisdiction, and working of the Commission in Lunacy and of other Lunacy Authorities in England and Wales, and into the expediency of amending the same, or adopting some other system of supervising the care of lunatics and mental defectives; and to report as to any amendments in the law which should, in their opinion, be adopted."

The Commission originally consisted of the Marquis of Bath, Chairman; Sir William Byrne, C.B., of the Home Office; C. E. H. Hobhouse; Dr. Needham, one of the Commissioners in Lunacy; H. D. Greene, K.C.; C. E. H. Chadwyck-Healey, K.C.; the Rev. H. N. Burden, Manager of Certified Inebriate Reformatories; W. H. Dickinson, at that time Chairman of the National Association for Promoting the Welfare of the Feeble-minded; C. S. Loch, Secretary of the Charity Organisation Society; and Mrs. Hume Pincent, Chairman of the Birmingham Special Schools Committee. Subsequently Dr. Donkin, one of H.M. Prison Commissioners, and Dr. J. C. Dunlop, Superintendent of Statistics in the Office of the Registrar-General for Scotland, were added to the Commission; and in February, 1905, the Marquis of Bath having resigned, Lord Radnor was appointed Chairman.

The Commission commenced hearing evidence on November 14, 1904, and published its Report on July 31, 1908. The 248 witnesses examined included inspectors and medical officers of special schools, reformatories, prisons, lunatic and idiot asylums, and inebriate homes, and, indeed, "representatives of all classes of persons who could give information

on the subject of inquiry." "Full particulars" were also obtained "of the manner in which foreign countries and the colonies are dealing with the questions submitted in the original reference." Visits were paid to "various institutions in which provision is made for the classes of persons named in the reference in England and Wales, Scotland and Ireland, and on the Continent." In addition, five members visited the United States of America, and issued a special Report of their observations. Almost at the outset it was found that "there were no available statistics from which any trustworthy estimate could be made as to the number of persons who might be said to fall within one or other of the categories named in our reference. We decided, therefore, that an expert investigation of the question was indispensable, and having obtained the authority of the Treasury for the expenditure, which was necessarily considerable, we appointed medical investigators to make a thorough inquiry in regard to the number of mentally defective persons (including epileptics) in sixteen separate typical districts, both urban and rural, in England and Wales, Scotland and Ireland, in the hope that, from the particulars thus ascertained, we might be able to form at least a rough estimate of the whole number, and of the provision that it would be necessary to make for their proper treatment." These inquiries by medical experts were a most important part of the work of the Commission, and gave their conclusions and recommendations a precision and authority which could not have been obtained in any other way.

The Commissioners published their Report and evidence in eight Blue-Books, of which the first three contain the evidence on the original reference, and

the fourth that on the extended reference. The fifth volume consists of appendix papers; the sixth contains the reports of the medical investigators; the seventh the report of the visit of certain Commissioners to America; while the eighth contains the Commissioners' own Reports and Recommendations.

It was stated in the Report that "of the gravity of the present state of things there is no doubt. The mass of facts that we have collected, the statements of our witnesses, and our own personal visits and investigations, compel the conclusion that there are numbers of mentally defective persons whose training is neglected, over whom no sufficient control is exercised, and whose wayward and irresponsible lives are productive of crime and misery, of much injury and mischief to themselves and to others, and of much continuous expenditure wasteful to the community and to individual families.

"We find a local and 'permissive' system of public education which is available here and there for a limited section of mentally defective children, and which, even if it be useful during the years of training, is supplemented by no subsequent supervision and control, and is in consequence often misdirected and unserviceable. We find large numbers of persons who are committed to prisons for repeated offences, which, being the manifestations of a permanent defect of mind, there is no hope of repressing, much less of stopping, by short punitive sentences. We find lunatic asylums crowded with patients who do not require the careful hospital treatment that well-equipped asylums now afford, and who might be treated in many other ways more economically, and as efficiently. We find, also, at large in the population many mentally defective persons, adults,

young persons, and children, who are, some in one way, some in another, incapable of self-control, and who are therefore exposed to constant moral danger themselves, and become the source of lasting injury to the community."

The fundamental recommendations of the Commission were that the Lunacy Commissioners for England and Wales should be replaced by a larger body, with extended powers and a wider purview, to be called "The Board of Control," which should be responsible for the proper care of all mentally defective persons. This central authority should supervise local administration. The Local Authority should be the Council of each County and County Borough, and they should be required by Statute to make suitable and sufficient provision for the mentally defective. They should exercise their powers through a Statutory Committee, to be called the "Committee for the Care of the Mentally Defective," which should take over the duties of the Visiting Committee, or as it is sometimes called, the Asylums Committee, of the County Council.

The Report of the Royal Commission excited widespread interest among public authorities and social workers throughout Great Britain, but it was not until considerable pressure had been put upon the Government, and two private Bills on the subject had been introduced, that the Home Secretary brought in (on May 16, 1912) a measure to give effect to its recommendations. This Bill did not get beyond the Committee stage in the Session of 1912, but was re-introduced in 1913, and received the Royal Assent on August 15. In England and Wales it came into operation on April 1, 1914; the corresponding Act for Scotland, which comprised also amendments of the

Scottish Lunacy Law, came into operation on May 15, 1914. Those who desire full information are referred to the Mental Deficiency Acts themselves, prints of which may be obtained from Parliamentary publishers for a few pence. Our space will permit only a brief résumé of the principal provisions, more especially those relating to children.

Taking the English Act first, four classes of persons who are mentally defective are defined to be defectives within the meaning of the Act, as follows:

“(a) Idiots—that is to say, persons so deeply defective in mind from birth or from an early age as to be unable to guard themselves against common physical dangers.

“(b) Imbeciles—that is to say, persons in whose case there exists from birth or from an early age mental defectiveness not amounting to idiocy, yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so.”

“(c) Feeble-minded persons—that is to say, persons in whose case there exists from birth or from an early age mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision, and control for their own protection or for the protection of others, or, in the case of children, that they by reason of such defectiveness appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools.

“(d) Moral imbeciles—that is to say, persons who from an early age display some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect.”

Though all persons falling under the above cate-

gories are deemed to be " defectives within the meaning of the Act," it would appear from Section 2 that they only become subject to be dealt with under the Act, (a) if under twenty-one, at the instance of the parent or guardian, or (b) at any age if found neglected, abandoned, destitute, or cruelly treated, criminal or inebriate, or being the pauper mother of an illegitimate child. Defective children over seven, notified by local Education Authorities as incapable of receiving benefit or further benefit in special schools or classes, or detrimental to other pupils in such schools, or certified by the Board of Education on account of special circumstances for supervision or guardianship, are also liable to be dealt with under the Act, as are also those leaving special schools or classes " in whose case the local Education Authority are of opinion that it would be to their benefit that they should be sent to an institution or placed under guardianship." This latter provision gives valuable powers for securing permanent protection for those whose home conditions would militate against the improvement effected by special school training being retained and turned to account in after-life.

It will be seen that to be dealt with compulsorily under this Act the subject, if adult, must in some way have proved to be incapable or unsatisfactory. In the case of children they must have at least been found liable to be ordered to be sent to a certified Industrial School, or have proved unfit for instruction in a special school, or at the end of their term there have proved that they require permanent care. The duty of ascertaining what children under the age of sixteen are defectives devolves on the local Education Authorities, all of whom under the amended Elementary Education (Defec-

tive and Epileptic Children) Act will be called on to notify to their Local Authorities not only the names of those passed as fit subjects for education in special schools, and their condition when about to leave these schools, but also the names of those whom idiocy or imbecility renders uneducable, and consequently requiring to be dealt with under the Mental Deficiency Act by way of supervision in an institution, or under guardianship. Doubtful cases are to be referred for the decision of the Board of Education. The efficiency of the Mental Deficiency Act, so far as children are concerned, depends largely upon the efficient working of the Education Act referred to. Those passed for special schools as "mentally defective" will generally fall under the definition given above of "feeble-minded," and will as a rule only become "defectives" to be dealt with under the Mental Deficiency Act when reported as requiring permanent care at the end of their school career. Thereupon it becomes the duty of the Local Authority to deal with them as may seem desirable, either by supervision at their own homes, or by sending them to suitable institutions, or by placing them under guardianship.

The Board of Control, which now consists of thirteen (two being honorary) Commissioners, with two Inspectors, is the Central Authority on which devolves the general supervision, protection, and control of all types of defectives, the supervision of the administration by the Local Authorities of their powers and duties under the Act, the licensing, regulation, and inspection of homes and institutions of all classes for defectives, and visitation of those under guardianship or under private care, and the provision and maintenance of institutions for dangerous defectives.

The Local Authority under the Act is the County or County Borough Council, which will act through a specially appointed Committee for the care of the mentally defective, consisting either of (1) members of the Council (who must form the majority), together with non-Council members chosen by the Council for their special knowledge and experience of the subject, of whom some must be women; or (2) alternatively (at the discretion of the Council) the Visiting or Asylums Committees under the Lunacy Acts, with the addition of at least two women. In certain cases approved by the Home Secretary and the Local Government Board two or more Local Authorities may combine to form a joint Mental Deficiency Committee. Their duties and powers include the ascertaining, except in the case of those dealt with at the instance of their parents or guardians under Section 2 (1) (a), of what persons within their area are defectives subject to be dealt with under the Act, to provide suitable supervision for such persons, and, when necessary, to place them in institutions or under guardianship; to provide suitable and sufficient accommodation for such persons when sent to certified institutions by orders under the Act; to maintain them wholly or in part in institutions, approved homes, or under guardianship; to employ the officers necessary for carrying out the Act; and to make annual and such other Reports as may be required by the Board of Control. Local Authorities are not, however, bound to expend money upon the above objects, excepting the first, unless the contribution by Parliament in aid amounts to 50 per cent. of the total expenditure. The Treasury contribution, originally limited by Section 47 of the Act to £150,000 in each financial year, has, by the passing of the Mental

Deficiency (Amendment) Act, 1919, been freed from statutory restriction as to its amount.

In addition to the Local Authorities, Poor Law Authorities are to retain the same powers as they previously possessed under the Poor Law to deal with pauper defectives, and will receive the same grants as they were entitled to under the Idiots Act, 1886, notwithstanding its repeal.

Four classes of institutions, etc., are contemplated under the Act in addition to approved homes—viz.,

1. *State Institutions* for defectives of dangerous or violent propensities, to be established and managed by the Board of Control.

2. *Certified Institutions*, established by Local Authorities, benevolent societies (incorporated or otherwise), or disinterested individuals, to be certified, regulated, and inspected by the Board, and to possess powers of detention under conditions laid down in the Act, and regulations framed by the Home Secretary.

3. *Certified Institutions* provided by *Poor Law Guardians*, and approved by the Board of Control, subject to the same conditions as above.

4. *Certified Houses*, established by individuals for private profit, approved by the Board of Control, but not eligible for defectives towards whose expenses there is a Parliamentary grant. These also have powers of detention.

Under the title of *Approved Homes*, premises wherein defectives are received and supported wholly or partly by voluntary contributions, or by applying the excess of payments of some patients for or towards the support of other patients, and any similar establishment, run for private profit, may be approved by the Board under such conditions as they

may think fit. Such homes cannot receive defectives legally committed to an institution, and have no legal power of detention.

Elaborate Regulations were issued by the Home Secretary in pursuance of the Act under the title of "Provisional Regulations."* These describe in detail the duties of Local Authorities, the procedure on petitions, and the granting, transfer, renewal, revocation, and resignation of certificates for certified institutions and certified houses. They give rules for approvals of homes, and the management of certified institutions, certified houses, and approved homes, and also for the inspection of these institutions and houses. Forms of petitions, statutory declarations, orders, certificates, etc., are appended. Space does not permit even a brief summary of these. It must suffice to state that ample precautions are taken to insure the suitability for their respective purposes of the various types of institutions, and by means of reports, records, and frequent official inspections, to insure suitable and humane treatment of the inmates, and to prevent detention when not justified by the mental condition. For admission to all the establishments, other than approved homes, two medical certificates,† one of which must be by a practitioner approved by the Local Authority or the Board of Control for the purpose, are required, and in addition a judicial order in the case of any person not certified either as idiot or imbecile. It is only in the latter cases that a statement of particulars can

* To be obtained from Wyman and Sons, 29, Bream's Buildings, Fetter Lane, E.C., and other Parliamentary publishers, price 3½d.

† Form of Medical Certificate is printed in Appendix E, p. 292.

be signed by other persons than the father or mother—*i.e.*, by a person undertaking the duties of guardian towards the patient. It must be remembered that the Idiots Act, 1886, having been repealed, the simple procedure by one medical certificate is no longer available, even in the case of idiots and imbeciles. As regards approved homes (presumably for borderline cases), though admission certificates are not prescribed, full particulars of the bodily and mental condition of inmates have to be reported by the Medical Officer of the Home.

The Mental Deficiency and Lunacy (Scotland) Act, 1913,* is a counterpart of the English Act, with certain modifications adapting it to Scottish administration, and a few amendments of Scottish Lunacy Law. In Part I. the expression "School Board" takes the place of "Education Committee" so far as ascertaining what children are defectives, and which of such children are educable in special schools, and making suitable provision for the education or proper care of such children between five and sixteen years of age when the parents or guardians are unable to do so; they must notify to the Parish Council and the General Board of Control the names of such children as are incapable of receiving benefit or further benefit from, or are otherwise unsuitable for, special schools or classes. The Parish Council is the Local Authority responsible for the care and supervision of such reported children, and also for ascertaining what persons of sixteen years or over are defectives subject to be dealt with under the Act, otherwise than at the instance of their parents or guardians, and for taking

* To be obtained from H.M. Stationery Offices, Imperial House, Kingsway, London, E.C.; or H.M. Stationery Office, 23, Forth Street, Edinburgh.

steps that they shall be dealt with by being sent to institutions or placed under guardianship. Upon the Sheriff devolves the duty of making judicial orders when these are required.

The General Board of Control for Scotland now consists of three paid Medical Commissioners (including the two formerly known as Lunacy Commissioners), in addition to the Chairman and two legal members, and of four Medical Deputy-Commissioners, one of the latter being a woman. Two others may, if necessary, be appointed. A District Lunacy Board will in future be known as the District Board of Control. If it comprises six elected women members, not more than two women must be co-opted. Their duties will be similar as regards carrying out this Act to those of County and County Borough Councils in England.

CHAPTER III

SPECIAL INSTRUCTION

FROM the preceding chapter it will be seen that considerable attention has been given in England of late years to the class of subnormal persons who are called in this country feeble-minded, in distinction to the imbecile and idiot groups. Recent legislation has taken account of them from the sociological standpoint in the Mental Deficiency Act, and from the scholastic in the 1899 and 1914 Acts for the Education of Defective and Epileptic Children. In the first they are referred to, under the definition of *feeble-minded persons*, as children who by reason of mental defectiveness, not amounting to imbecility, existing from birth or from an early age, "appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools." In the latter they are referred to as "children not being imbecile, and not being merely dull or backward—that is to say, children, by reason of mental or physical defect, incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but not incapable by reason of such defect of receiving benefit from instruction in special classes or schools." It is to be remarked that the element of permanence appears in the first definition, but not in the second; and it may be argued therefrom that the special schools can reasonably be regarded as means of determining such

permanence, especially in relation to the need for segregation.

With the judicious administration of the new Acts it is hoped that Great Britain will stand ahead of all other countries in its treatment of the mentally defective class. It must, however, be admitted that in the past German and Scandinavian countries have been in advance of us in organising practical arrangements for the training of exceptional children. So far back as 1863 there was established at Halle an auxiliary class (*Hilfsklasse*) for pupils found incapable of following the ordinary elementary school curriculum; in 1867 a similar class was established at Dresden. Leipzig and Brunswick followed, and gradually auxiliary schools (*Hilfschulen*) grew out of these classes. Herr Kielhorn, the director of the Brunswick auxiliary school (established in 1881), gave an account in 1894 of 32 auxiliary schools, consisting of 110 classes, with a teaching staff of 115, established in various parts of Germany. Herr Wintermann,* of Bremen, supplemented this statement in 1898 by the information that at that date auxiliary schools existed in 52 German towns, consisting of 202 classes, and containing 4,281 children (2,400 boys, 1,881 girls, under instruction by 225 teachers. So rapid was the development that at the end of 1905 Fräulein Dora Weinrich, of the Centrale für Private Fürsorge, Frankfurt-on-Main, in her paper at the After-care Conference at Nottingham, said there were 230 special schools, with 15,000 pupils, and that the aim was to have at least one in every town of 15,000 inhabitants. It is claimed that many children considered hopeless in the ordinary schools have been enabled by special

* *Berichten über den ersten Verbandstag der Hülfschulen Deutschlands*, 1898.

instruction to follow useful careers. The large extension of the auxiliary schools above noted is, in a practical country like Germany, perhaps the best testimony to their success.

In the Scandinavian countries also, in addition to the boarding establishments for imbeciles previously described, day classes for the instruction of "abnormal children" have been established for more than thirty years. In Christiania and Bergen they were started under the direction of Herr Karl Lippestad and of Herr Soethre respectively. In addition, separate classes for merely backward (not necessarily defective) children were organised in connection with two of the largest elementary schools in Bergen. In Denmark various grades of defectives are received either in day classes or in residential institutions, as may be necessary, in the chain of establishments organised and supervised by Dr. Keller, which have now been adopted by the State. The arrangements for instruction are very complete, and the ratio of teachers to taught liberal, the classes usually consisting of not more than eight or ten pupils. Stress is laid upon physical and manual exercises. The pupils not fit to return home after school training are drafted to working institutions, of which there are several grades. Farm work and other occupations, such as brush, broom, and basket making, are followed by the older boys. The older girls are employed in dairy and laundry work, as well as in a variety of home industries, such as weaving cloth for dresses, curtain material, etc. For some, situations in domestic and dairy service are found, and it is said of the girls, whose careers are carefully watched, that "very few turn out badly." Professor Keller has kindly supplied us with a list of institutions, public and private,

existing in Denmark, Norway, Sweden, and Finland, from which it appears that no less than forty-three establishments for the care of mental defectives have been established in these countries, with an aggregate accommodation for about 1,500 improvable and 600 unimprovable cases.

In Belgium special schools for the mentally defective were in existence for some years previous to the war, and in Brussels, Antwerp, and Ghent, there were also After-care Societies, which originated from the "Société Protectrice de l'Enfance Anormale." The movement in favour of "special schools" for sub-normal children has also spread to Austria, to Switzerland, to France, and even to Spain. In Italy there exists a "National League for the Protection of Deficient Children," under the presidency of Signor Guido Baccelli, formerly Minister of Public Instruction, one of the first-fruits being the opening in Rome of a day-school. In America much important work has been done. The members of the Commission on the Care and Control of the Feeble-minded who visited that country were favourably impressed by what they saw in some of the States, for it must be remembered that each State has its own regulations and institutions. Our Commissioners were struck by the excellent practical work they saw carried out by the feeble-minded, and also by the economical character of the buildings and general arrangements. There are in America several industrial colonies for permanent care. These have been recognised as essential. Work in the special schools is regulated with this view, and to the continuous training and supervision is no doubt largely due the excellent work done by some of the adult feeble-minded. Our Commissioners gave a specially interesting account of

what they saw at the Templeton Colony for Feeble-minded Males, ninety miles from Boston. The colonists "are all required to do manual work, and many of them do nearly the full work of a free labourer. We saw a group of four, with heavy sledges and hammers, breaking rock and drilling it for blasting with explosives. They were working steadily and without supervision. Farther on was another group of five men working in a field. They were bringing in stooks of corn, which they were loading upon a cart. Others in the shed were unloading and storing the corn. A further group was hauling bricks in wheelbarrows. At a little distance there was a row of about a dozen, who, under the supervision of one man only, were working a field with sharp pickaxes. An imbecile was ploughing with a pair of horses, his daily task. All of these men had come from Dr. Fernald's schools for the feeble-minded, and a large proportion of those who were busily and happily engaged in useful work could never be taught to read and write; some had not human speech. The previous training was, of course, essential; idiots and low-grade imbeciles could not be employed in this way without preliminary training."

In England priority in the opening of a Special Class belongs to Leicester, where the School Board started one in April, 1892. In the same year were established in London "Schools for Special Instruction" of children who, by reason of physical or mental defects, could not be properly taught in the ordinary standards or by ordinary methods, Mrs. Burgwin being appointed organising superintendent, a post which she filled with signal ability for upwards of a quarter of a century. Eighty-seven centres of special instruction for mentally defective children

have up to the present time been established, chiefly in the poorer districts of the Metropolis, with accommodation for 8,076 pupils—a number constantly increasing. The Board have wisely ordained that no more than twenty children be assigned to each teacher; in practice the classes are even smaller. The ratio of pupils is, however, much larger than that which obtains in the Scandinavian schools, where one teacher is provided for every ten pupils; but the superintendent utilises to the utmost the teaching force at her command by well-devised time-tables. It may be remarked with regard to this that, though the ordinary school nomenclature of studies is retained (as in the case of the so-called “three R’s”), much more than the ordinary instruction is included, sensorial and manual training and objective methods of demonstration being freely employed. The “occupations,” which form an important part of each day’s work, are specially adapted to the varying capacities of individual pupils. The results, as evidenced at annual exhibitions of the products of manual training in the London Council Schools generally, are most encouraging, and in some cases surprising. It may be stated, indeed, that at these exhibitions the array of work by children in the special classes creditably holds its own, side by side with that of the normal children. During the last fifteen years an advance has been made by the establishment of twelve centres for about 1,300 “Elder Boys,” in which instruction is given in manual arts by male teachers. Five centres for 384 “Elder Girls” have also been established.

The selection of pupils for these classes is made by medical officers appointed for the purpose in conjunction with the Superintendent of Special Instruction. The parents, and also the family doctor, may attend

the examination; but we shall not discuss here the mode of procedure, as we have devoted a special chapter (Chapter VII.) to this subject.

An important extension of the training for the feeble-minded has recently been inaugurated by the London County Council, who have established at the Harmood Street Mentally Defective Centre evening classes for those who have passed through the Day Schools for the mentally defective.

The Report of the Chief Medical Officer of the Board of Education for 1919 states that the number of certified schools for mentally defective children in England and Wales was 199, with accommodation for 15,825 children, and a total average of 14,597 on the register. These include twenty-one residential schools, providing accommodation for 1,731 children on the register. The London County Council (Asylums Board Committee) have also provided a residential Training Home at South Side, Streatham Common, for 80 higher grade defective girls, chiefly above sixteen years of age. The Royal Commission estimated the number of children in England and Wales needing provision at 35,662. Hardly two-fifths of this number are being dealt with at the present time in certified special schools, and the Chief Medical Officer of the Board of Education considers that the aggregate accommodation necessary for educable mental defectives, excluding idiots and imbeciles, amounts to about 30,000 school places.

There is, unfortunately, sometimes prejudice in the minds of parents against the attendance of their children at special schools, as stamping them with inferiority. The Act of 1899 recognises parental rights in Subsection 5 of Section 2, which compels school authorities to "make provision for the ex-

amination from time to time of any child dealt with under this section, in order to ascertain whether such child has attained such a mental and physical condition as to be fit to attend the ordinary classes of public elementary schools," and, if the parents so request, re-examination must be made at intervals of not less than six months. The Amending Act of 1914 further provides for the parents being consulted by the Local Education Authority on the subject of suitable provision for the mentally defective child, which, if not made by the parents, must be provided by the authority either in a special day school or class, or in a special residential school. The parents are to have a certain choice in the selection of the former, and their written consent, which must not be unreasonably withheld, is necessary before sending the child to a boarding-school.

Education Committees have made provision for the periodical examination by the medical officers of all children attending the special classes. On their report, which is based to a large extent on information as to progress furnished by the "special" teachers, improved cases are sent back to the ordinary elementary schools. In view of the fact that under the Mental Deficiency Act (Section 2, 2) notice has to be given by the Education Authority to the Local Authority of all defective children over the age of seven, (1) who have been ascertained to be incapable of receiving benefit or further benefit in special schools or classes, or who are detrimental to the other children in those classes, or (2) who on or before attaining the age of sixteen are about to be withdrawn or discharged from such classes, and require care in an institution or under guardianship, it is important that the first and subsequent examinations should be

conducted with precision on a definite plan. An elaborate scheme for this has therefore been drawn up by the Board of Education.

There are a few educational homes which receive children of the better social class who are so far deficient or irregular in mental development as to require special education. As the mental deficiency or irregularity is often intimately connected with physical abnormality, skilled medical supervision is an advantage. It is obvious that a child whose mental deficiency or nervous peculiarity is but slight will have a better chance of improvement, when educated with those of similar mental calibre, than if subjected to hopeless competition with normal children at an ordinary school, or, on the other hand, exposed to the depressing influences of an institution where idiots are received. Such private establishments are now subject to the approval and visitation of the Board of Control, and are registered either as certified or approved homes under the Act.

In addition to arrangements organised by Education Committees, certain philanthropic agencies have, since 1890, established industrial homes in various parts of the country for the employment under judicious supervision, of feeble-minded adolescents. In a few instances there have also been established institutions for the training of younger children for whom a boarding-school is essential, either on account of immoral, vicious, or truant tendencies, or because they come from very bad homes. In 1896 the National Association for Promoting the Welfare of the Feeble-minded was formed, with the object of co-ordinating the scattered efforts that had already been made, and arousing a larger share of public interest. It has under its immediate control in the

neighbourhood of the Metropolis three homes—two for girls beyond school age, and one for feeble-minded mothers and their children—and has established, under the patronage of H.R.H. the Princess Christian, an Industrial Colony at Hildenborough, Kent, where 136 boys and girls and adults are at present resident. They are accommodated in scattered buildings on various parts of the estate of 170 acres, the males being employed principally in farm work, and also in carpentering, shoemaking, etc., and the females in domestic, dairy, and laundry work.

In May, 1902, the Incorporated Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded opened a boarding-school for 12 boys, and in September of the same year a home for 8 girls, the organisation of which was due to the efforts of Miss Mary Dendy (now a Commissioner of the Board of Control) and of the late Dr. Henry Ashby, on a beautiful estate near Alderley Edge, Cheshire, known as Sandlebridge. This has developed by successive additions of adjoining properties into an extensive Farm and Industrial Colony (as well as School), and now affords accommodation for 295 higher grade defectives of either sex. The importance of permanent care has from the first been insisted on as a feature of the Institution, early admission (*i.e.*, at school age) being also requisite, and continuous care is facilitated by its being registered both by the Board of Education and by the Board of Control. There is well-classified accommodation in 5 scattered Homes of moderate size for patients ("colonists") of all ages and both sexes, with schools and workshops, and a detached hospital. Children are not admitted over thirteen, and as far as possible are kept for life; 42 boys work on the farm and garden, and

52 girls are employed in the laundry and the various houses.

In May, 1907, the Sandwell Hall Boarding-school for the Feeble-minded was opened near Birmingham by the generous efforts of the Rev. H. N. Burden, one of the members of the Royal Commission on the Care and Control of the Feeble-minded. Sandwell Hall was formerly the family seat of the Earls of Dartmouth, and stands in the midst of a spacious park a few miles north of Birmingham. In this institution special arrangements were made for training in practical work—gardening, carpentry, boot-making, brush-making, laundry work, carpet-weaving, and tailoring. The full complement of 200 was soon received. At first both boys and girls were admitted, but the girls have since been transferred, and Sandwell is now reserved for boys only, with accommodation for 195 certified by the Board of Education. No cases are retained after sixteen, but whenever possible they are drafted on to other institutions. Mr. Burden's energy and enterprise have, however, extended far beyond the limits of Sandwell Hall, with the result that Sandwell is now only one of a group of institutions called the "National Institutions for Persons requiring Care and Control." The central offices of the Incorporation are at 14, Howick Place, Westminster. The institutions are intended for "*permanent*" as distinct from temporary care, and no case is knowingly received as a temporary measure." They include Stoke Park Colony, near Bristol, opened in 1908, and now certified (together with its "ancillary premises") by the Board of Control as an "institution" for 768 male and 960 female cases, under the Mental Deficiency Act. The Midland Counties Institution, Whittington Hall, Chesterfield, certified

by the Board of Control for 400 female cases; the Royal Victoria Home near Bristol and Clevedon Hall in Somersetshire are registered as "ancillary" to Stoke Park, and the latter is intended partly for the use of those members of the staff and inmates of the other houses who require change and special treatment, and partly for the training of specially selected girls with very slight mental defect, who may ultimately become fit for domestic service in better-class situations.

Altogether there are now in England a considerable number of homes of this class, particulars of which will be found in Appendix A. The accommodation so far available, however, is inadequate to deal with the large number of cases in need of provision. All such institutions have a long waiting list, and many Committees for the Care of the Mentally Defective who have taken up their duties under the Mental Deficiency Act have found that they must establish institutions of their own to provide the accommodation they require.

A few illustrative cases, giving an idea of the class of children to whom the designation of "feeble-minded" may appropriately be applied, will help to elucidate the subject:

PRIVATE CASES.

CASE I.—A child of highly intellectual parents is noted to be somewhat delicate in babyhood, but no suspicion of mental abnormality is entertained by his parents until, at two years of age, it is found he uses only a few monosyllabic words, and does not try to

construct sentences for himself, though he can perfectly well repeat what is said to him. He frequently, indeed, repeats questions put to him instead of replying to them, thus showing that the defect is not one of hearing, but of understanding. Much care and patience is exercised by an intelligent mother, with the result that at four he speaks fairly well, though with thick utterance. Home education is carried on till he is seven years of age, but a brother two years younger is almost two years in advance of him in elementary studies. He is then sent to a kindergarten for morning lessons; he takes interest in the songs and in simple musical drill, does paper-folding, stick-laying, mat-weaving, and bead-threading in series of number and colour. His interest, however, soon flags, and he is apt to repeat the same question again and again, as if not attending to the answer. In calculation he makes but little progress, and with difficulty masters the simple rules of arithmetic. By dint of individual instruction he attains, by the time he is ten years of age, the power of reading, though in a monotonous style, easy stories in a primer, writes copies in text-hand, and plays simple exercises on the piano. There is, however, still a marked childishness of manner, a thick articulation and *staccato* utterance, and a tendency to repeat questions in a meaningless way. His bodily development has improved, and his only sensory defect is an error of refraction corrected by spectacles. Some twitching movement is noticeable in the muscles of the fingers, especially under excitement; but otherwise muscular control is fairly good. Under drill, regulated muscular exercise, manual training, and varied but brief school lessons he improved and became a steady worker in the garden, and good at Sloyd work. He is now leading a happy and useful life on a farm, but always requires supervision.

CASE II.—A pretty, well-nourished little girl of five, the third child of healthy, intelligent parents.

Type.—Mongolian.

The family history records nothing unfavourable.

History.—As a baby she was not able to suck, and was therefore brought up with difficulty on bottled food. She could not walk or talk till four years of age.

On examination, she is able to count to 20, and has a good memory. Her mental age, according to the Binet Tests, is $3\frac{4}{12}$. She has some hypermetropic astigmatism, for which glasses are prescribed.

On re-examination at eight years of age, she reads easy words and writes a little; recognises animals in pictures, and can count up to 100, but cannot calculate at all. She can almost dress herself, and is useful in the house. The chief trouble is weak power of attention. Mental age $4\frac{6}{12}$.

A year later she was able to write a short letter from dictation, and was improving in every way. Mental age $5\frac{2}{12}$. Six months after that she died of cerebral thrombosis.

CASE III.—A stupid-looking youth of eighteen; height, 5 feet $10\frac{1}{2}$ inches.

Family History.—The father died at forty-five of pneumonia. The paternal grandfather, who had been in the army, was a heavy drinker; he died at seventy-two, having done no work for the last twenty-five years of his life.

On examination, he is found to be a high-grade defective of no special type. He has a small forehead and a defective occiput; the little fingers are abnormally short, and he is flat-footed. He reads the newspaper, can write and perform simple calculations. He knows the day of the week and the year, but not what month it is; he does not know the name of the King, though he can say who the last King was. Mental age $8\frac{1}{2}$.

His *History* is that he was precocious as a child, and not considered abnormal till he left the infant school, when he was found to be dull at learning. He was, however, very mischievous and imaginative. At thirteen years of age he was only in Standard IV. The parents were advised that work would bring him out, so he was sent to a cabinet-maker's. After a few months

he was sent home as having no adaptability. He got another place as an errand-boy, but nothing could be made of him, and the same tale was told at other places. His condition remained much the same till eighteen years of age, when it was noticed that he was getting more lazy and otherwise deteriorating.

The following are examples of cases presented for "Special Instruction" from Council Schools:

NOTES ON ADMISSION.

CASE IV. (Microcephalic type).—F. D., aged seven years seven months. Mental age, three years two months. Small for age, fairly nourished, well limbed. Senses perfect. Head small with narrow forehead, tapers towards vertex, circumference 19 inches. Palate high and narrow. Epicanthus. Mouth breather. Hands well extended. Has attended infant school three years. Knows letters, and can form O, A, I, T. Cannot count correctly, and says that he has three eyes, a dog six legs, etc. Requires special instruction, but should have more manual than mental work, as he seems subject to headaches. Should be examined for adenoids.

CASE V. (Syphilitic taint).—M. O., aged twelve. Mental age $6\frac{1}{2}$. A dull-looking girl with dusky complexion. Head 21 inches. Radiating lines around mouth. Teeth "peggy." Sight of right eye destroyed by interstitial keratitis, some opacity of left, but fair vision. Slightly deaf. Seems to have been almost stationary the last two years. Is excitable at times, but generally slow in reaction. Reads from primer in drawling way. Writes untidily. Can add and subtract a little. Unfit for ordinary standards, but may learn some manual work in special instruction class. Likely to retrograde later.

The following have been under special instruction for a time:

CASE VI.—A. C., aged sixteen. Admitted to a special school seven and a half years ago.

The *History* is that he suffered from convulsions of a mild character in infancy, but has had none since three years of age. He could not learn in an ordinary school. While in the special school he was not strong and could only do light work. His memory is fairly good. He can copy correctly and read a little. He is good at manual work, especially at making rugs.

Family History.—The father is eccentric and uneducated, though not actually defective. The mother died at fifty-five, of bronchitis. He is the youngest child of a family of ten, of whom the fourth died when one year old, and the ninth at two years of age from pneumonia.

On examination he is found to be a feeble-minded boy of poor physique. There is some anæmia. His nails are bitten, and his vision is defective, being only $\frac{6}{18}$ in each eye. The teeth have defective enamel, and two of them are bad. Tested for mental age (Terman Revision of Binet-Simon) he did all the tests of year seven, two of year eight, and none of year nine. His mental age, therefore, is $7\frac{4}{2}$. He failed with the Form Board.

CASE VII. (Sporadic cretin).—A. S., aged fourteen. Mental age $7\frac{8}{2}$. Admitted four years ago to special school, being unfit for ordinary school in consequence of physical and mental abnormalities characteristic of cretinism. During the last three years has had thyroid treatment at Children's Hospital, and has notably improved. From being an inert dwarf, with baggy cheeks and protuberant abdomen, he has become an active (somewhat mischievous) boy of bright expression and slender figure, and has grown 8 inches (from $39\frac{1}{2}$ to $47\frac{1}{2}$) in last two years. Now knows the letters and figures; can write his name and add a little, although originally absolutely incapable of any educational attainment.

CASE VIII.—E. P., aged sixteen. Admitted to a special school four years ago.

The *History* is that she was very delicate as an infant, but learned to walk and talk at two years of age. Could not learn at normal school. In the special school she has been well behaved, but shows very little energy. She is facile and her memory is poor. She can write from a copy and read a little. Works well in the kitchen. Needlework, splendid; good at dancing. General lack of mental ability and calculating power.

Family History.—Both father and mother are delicate, the mother suffering from asthma. She is the fourth of seven children, of whom the two eldest died of convulsions in infancy. The fifth and sixth were twins; one of these was stillborn and the other died at eight months.

On examination she is found to be a low-grade, feeble-minded child of no special type. Her nutrition is poor, and there is some anæmia. Her head is dirty, abnormally high and narrow, and of small circumference ($19\frac{1}{2}$ inches). Her vision is poor, being only $\frac{6}{48}$ in each eye. The ears are rudimentary in shape. Adenoids have been dealt with by an operation. The patellar reflexes are brisk. Tested for mental age (Terman Revision) she passed all the tests of age six, three of age seven, and two of age eight. Her mental age, therefore, is $6\frac{1}{2}$. She failed in the Ball and Field Test, but did the Form Board correctly in two and a half minutes.

CHAPTER IV

PATHOLOGICAL CLASSIFICATION OF FORMS OF MENTAL DEFICIENCY

AS stated in the preface to the first edition, it is not intended in the present work to do more than glance at the pathological aspects of the subject. Those interested in these aspects will find much that is valuable in the well-known textbook by Ireland,* in successive volumes of "Recherches" by Bourneville,† in an article by Dr. Fletcher Beach in Hack Tuke's‡ "Dictionary of Psychological Medicine," and in the publications of Hammarberg.§ More recent work will be found in the writings of Dr. Sherlock,|| Dr. Tredgold,¶ and particularly Dr. J. S. Bolton.** The observations of Dr. David Orr†† and Dr. R. G. Rows†† on experimental toxi-infection of

* *Mental Affections of Children*, W. W. Ireland, 1898.

† *Recherches sur l'Épilepsie, l'Hystérie, et l'Idiotie*, Paris, 1890 et seq.

‡ See also article on "Idiocy and Imbecility" in Clifford Allbutt's *System of Medicine*, vol. viii.

§ Hammarberg, *Studien über Klinik und Pathologie der Idiotie*, Upsala, 1895.

|| *The Feeble-minded*, E. B. Sherlock, 1911.

¶ *Mental Deficiency*, A. F. Tredgold, (third edition), 1920.

** "Amentia and Dementia," *Journal of Mental Science*, 1905 and 1906. *The Brain in Health and Disease*. (London, Edward Arnold.) 1914.

†† David Orr and R. G. Rows, "Lymphogenous Infection of the Central Nervous System," *Brain*, 1914. Also various contributions to *Brain* and *Journal of Mental Science* in 1914, 1915, 1917 and 1918.

the central nervous system are of special value. The most important facts in pathology from the clinical point of view are those that are serviceable in classifying cases. Before describing these, however, a short account of the general pathology may be interesting. And first we remark that in connection with mental deficiency there are two main divisions of cerebral abnormality: (*a*) that arising from formative or developmental defect, and (*b*) that resulting from inflammatory or degenerative processes. These two classes are now usually spoken of as **Primary** and **Secondary Amentia**, terms suggested by Dr. Tredgold,* who states that over eighty per cent. of all cases may be assigned to the first group. **Primary Amentia** denotes mental defect due to an intrinsic cause (morbid heredity), **Secondary Amentia** that due to an extrinsic cause (traumatism, disease, or other unfavourable environment). It is important to realise that the second group includes a mixed class of cases, in which the actual lesion supervenes upon a brain originally imperfect in development; to such cases, occurring at a crisis of early life, the name DEVELOPMENTAL is often applied. The extent of the cerebral abnormality, whether original or acquired, may *a priori* be expected to bear some proportion to the degree of mental defect; this is usually the case, though it is necessary to bear in mind that microscopic as well as macroscopic constitution of brain tissue must be taken into account, and that certain portions of the brain are of more importance (*quâ* intelligence) than others.

Recent microscopical investigations have yielded a rich harvest of facts. In primary amentia cellular changes have been found in all regions of the brain.

* *Mental Deficiency*, Baillière, Tindall and Cox, 1920, p.41.

The prefrontal and, to a less extent, the parietal lobes, are, however, the two situations in which they most frequently occur.* Dr. Bolton states that "the regions of under-development in cases of mental deficiency and of wasting in cases of dementia (or permanent psychic disability due to neuronc degeneration) were satisfactorily determined to have their chief focus in the prefrontal region." According to Dr. Tredgold, "As compared with the nerve cells of the healthy brain, those of the ament are characterised by the following conditions: (1) Numerical deficiency; (2) irregular arrangement; (3) imperfect development of individual cells."† He further states "that the amount of change discoverable by the microscope is distinctly proportionate to the degree of mental deficiency present during life." Among other changes a paucity of dendrons and gemmules and pigmentation are noticeable. The pyramidal layer of the cortex shows the most obvious abnormalities; it is in its deeper layer that pigmentation is most frequently observed. At the same time "the bands of tangentially coursing fibres comprising the association systems show a very definite diminution in cases of severe amentia, so great, indeed, as often to be apparent to the naked eye. Generally speaking, the most marked alteration occurs in the fibres composing the outer line of Baillarger, next in the super- and inter-radial bundles, whilst the superficial tangential fibres are somewhat less affected."‡ There is often also *sclerosis*, or overgrowth of neuroglia, usually in the form of localised patches.

* See also *Goulstonian Lectures*, R.C.P., by J. S. Bolton, February and March, 1910.

† A. F. Tredgold, *Mental Deficiency*, 1920, p. 77.

‡ *Ibid.*, p. 81.

These are found chiefly in three situations: (1) the grey matter of the cerebral cortex; (2) the floor of the lateral ventricles; (3) the surface of the hemisphere under the pia, closely applied to the cortex. These histological changes are the essentials in mental defect, rather than the gross lesions we shall presently describe.

Localised signs of disease in an otherwise well-developed brain are suggestive of *secondary* amentia rather than *primary*. Without a reliable history, however, the distinction is difficult, and often impossible, especially as the dementia that frequently supervenes is characterised by histological signs that obscure the issue.

As regards macroscopic appearances, we frequently find, especially in the more extreme cases of mental defect, definite changes visible to the naked eye. The skull in primary amentia is often thick and dense and the diplöe frequently non-existent. The sutures are sometimes prematurely united, a condition, however, in no way the cause of poor cerebral development, as was at one time thought.

Usually, in primary amentia the brain weighs less than the normal. It may be peculiar in configuration, and the convolutions irregular or unusually simply arranged. There may be gross malformations of development connected with the fissures, basal ganglia, and other parts.

Defects of the Corpus Callosum and partial atrophies affecting portions only of the brain are occasionally seen. Such gross lesions, however, although more common in the mentally defective and epileptic, have been found in individuals who appeared to be normal. They do not, therefore, predicate mental defect unless associated with the histological changes

PLATE II.



FIG. 1.—PORENCEPHALUS.
(R.A.I. 1884.)

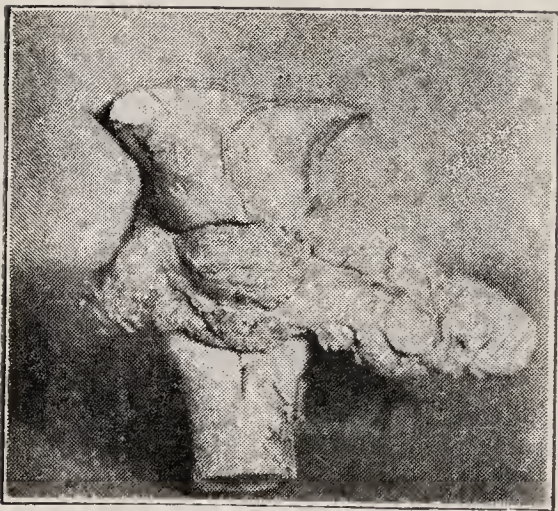


FIG. 2.



FIG. 3.

DEFECT OF CEREBELLUM.
(R.A.I. 1884.)

ABNORMALITIES IN BRAIN STRUCTURE.

already described, or involving an area essential to the normal intellectual or psychic processes. Among some remarkable abnormalities the following are specially interesting. In the autopsy of a hemiplegic imbecile, who died at twenty-one years of age, a gap 4 inches in length was found extending from the anterior part of the right frontal lobe nearly to the occipital, leaving the orbital plate uncovered, and disclosing part of the cavity of the lateral sinus (see Plate II., Fig. 1). Internally, a narrow ridge, marked by convolutions, separated this gap from the longitudinal sinus; between it and the temporo-sphenoidal lobe was seen standing out, quite uncovered by convolutions, part of the caudate nucleus. The brain weighed 32 ounces. This defect was due to an arrest of development, as there was no cicatricial tissue, and no descending sclerosis of the spinal cord. The mother gave an account of fright and injury in consequence of being knocked down by a cow during the sixth month of pregnancy. The patient's left arm and hand were smaller than the right; his speech was indistinct, but he was able to frame ordinary sentences; while his senses were normal. He made himself useful, and could clean shoes well.

A rare case of **atrophy of the cerebellum** was discovered at the autopsy of an imbecile girl of fifteen, who died at the Royal Albert Asylum of phthisis. As no marked ataxia or inco-ordination had been noticed during life, it was with some surprise that a merely rudimentary condition of the left lobe of the cerebellum was observed (see Plate II., Figs. 2 and 3). This was represented by a papilla no larger than the nail of one's little finger; while the vermiform process was a minute nodule showing faint signs of lamination on the surface; the right

lobe, which constituted the main portion of the cerebellum, was only half a square inch in superficial area, and only a quarter of an inch thick at its base. This lilliputian lobule had, however, the normal laminated appearance and structure. The pons was indicated by a few transverse fibres. With the exception of the cerebellum and its peduncles, the rest of the encephalon (which weighed 42 ounces) and the cranial nerves appeared to be normal. In this case there had been considerable feebleness of body as well as of mind, the girl having suffered from a protracted illness (phthisis), but the gait was by no means characteristic of cerebellar abnormality.

We may refer here to the two interesting groups of cases known as **word-deaf** and **word-blind**, which are due to absence or imperfect development of special portions of the brain. These conditions are not uncommon, occurring, according to Dr. C. J. Thomas,* about once in every 2,000 children, and probably at least once in every twenty mentally defective children. In our experience word-deafness is a very rare condition, while slight degrees of word-blindness are not infrequent, even amongst ordinary school-children. Just as with the condition of oxycephaly to be presently described, the first accounts were written by ophthalmic surgeons, and to Hinshelwood† in particular we are indebted for some instructive clinical cases. Dr. Kerr,‡ late medical officer to the London County Council Education Committee, and others have also described the condition.

* *Some Forms of Congenital Aphasia in their Educational Aspects*, 1905.

† *Lancet*, May 26, 1900; *Ophthalmic Review*, 1902.

‡ *Lancet*, 1900, i., p. 1446; *Report of Medical Officer of School Board for London*, 1904.

A WORD-DEAF child, though he does not appear to be as intelligent as one whose only defect is word-blindness, is superior to the ordinary mental defective. He may be able to write from a copy, draw well, and use his fingers; vision is normal, and he is not really deaf, for he can respond by raising his head to sounds of all kinds, even when faint. It is not the actual hearing centre which is at fault, but the centre which interprets the sound of words heard. He can reproduce many words without understanding them, though the meaning of an occasional word may dawn upon him when his lips move to pronounce it. Some of these children keep their eyes on a speaker's lips, and recognise a few nouns by lip-reading. The only chance of training is to teach them to understand language by lip-reading, and so "connote the mechanism employed in uttering words with their meaning."* This must be done at whatever cost of time and patience, because the understanding of language is a necessity for all human beings.

The WORD-BLIND child is apparently intelligent, often clever at hand-work and drawing, with good powers of observation and reasoning; in calculation and manipulation of Arabic numerals he may be equal to the normal. He is, however, unable to read even words of one syllable, and the most painstaking attempts to teach reading are an absolute failure. Vision is normal. Although he cannot recognise words, yet if a word is spelt out to him he is often able to respond with the correct one. Occasionally he is able to arrive at the meanings of words by spelling them aloud. It is not the actual centre for

* Dr. Leonard Guthrie, "Functional Diseases of the Nervous System," *Diseases of Children*, edited by Garrod, Batten, and Thursfield, p. 691.

vision which is to blame, but, according to Dr. Thomas, the defect is due to "a congenital poverty of structural elements" of the visual word-centre, which is situated in the supramarginal and angular gyri of the left side, which results in word-blindness.

In the case of word-blind children the auditory centre can be trained to supplement the visual, while much may be done to develop a kinæsthetic memory of word-meanings by making the pupil move his lips as he reads, or trace the words on paper, or use the Braille raised type. The process is, however, so laborious and slow, and the ultimate result so far from being really satisfactory, that—with working-class children, at any rate—time should not be wasted in any attempts of the kind, but the child put at once to tasks for which he has more natural capacity.

The condition designated **Mind-Blindness** is one essentially of the receiving rather than the storing visual centre; for this "a lesion of the posterior part of the corpus callosum is generally considered, at least partly, responsible."*

We have often thought that a similar explanation may be given for some at least of the cases spoken of as MORAL DEFECTIVES, an account of which is included in the next chapter. Moral sense must depend on the integrity of more than a single area of the brain; a lesion of one of the areas involved, or of some of the connecting fibres, can scarcely fail to have serious consequences.

Of the obvious primary abnormalities, the most striking is that of **Microcephalus**. Characteristic in

* *Brain*, vol. xxxvi., p. 119, "Experimental and Pathologico-Anatomical Researches on the Corpus Callosum," by Dr. C. T. Van Valkenburg, Amsterdam.

PLATE III.

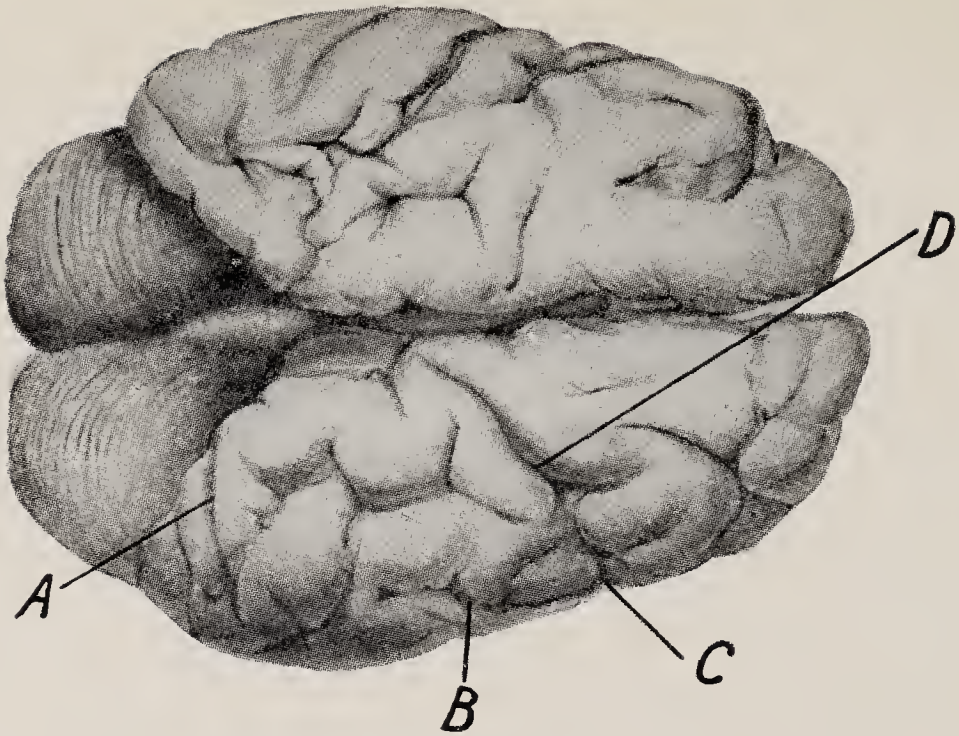


FIG. 1.—MICROCEPHALIC BRAIN (CONVEXITY).
(Half natural size.)



FIG. 2.—BRAIN OF "FREDDY" (CONVEXITY).
(Natural size, after preservation in spirit.)

MICROCEPHALIC BRAINS.

its extreme form of a low type of idiocy, in which have been traced simian and even theroid resemblances, it may be traced through a series of gradations of head measurement from idiocy and imbecility to simple "feeble-mindedness." Microcephalus, however, does not depend solely upon diminutive size of the head. In our opinion the limitation of the term proposed by some* to cases in which the cranial circumference does not exceed 17 inches is scarcely scientific. There is a characteristic form,† as well as size, indicative of microcephaly, consisting of a narrow, rapidly receding forehead, a somewhat pointed vertex, and a flat occiput. The frontal and parietal lobes are on a small scale, but it is in the occipital and temporo-sphenoidal that we usually find the most striking evidence of arrest in development. This is well shown in the case of a microcephalic girl of fifteen, formerly under the care of Dr. Shuttleworth, at the Royal Albert Asylum, whose brain was fully described by him in the *Journal of Mental Science* for October, 1878. A view of the convexity of the brain, which weighed, when removed, only $21\frac{1}{2}$ oz., is appended (Plate III., Fig. 1, half size.)‡ A still more remarkable case ("Freddy"), for twenty years under Dr. Shuttleworth's observation at Lancaster, was anatomically reviewed by Dr. Telford Smith and the late Professor Cunningham. The brain, when recent, weighed only $12\frac{1}{2}$ ounces.

* Ireland, *op. cit.*, p. 89.

† See Plate IV., Fig. 1, p. 60.

‡ DESCRIPTION OF PLATE III.—FIG. 1.—General view of Microcephalic Brain seen from above. A. Parieto-occipital fissure. B. Horizontal fissure. C. Ascending limb of Sylvian fissure. D. Fissure of Rolando. See also *Trans. Roy. Dublin Society*, new ser., vol. v., plate xxxvi.

The convolutions were simple; fairly distinguishable in the anterior lobes, they became rudimentary posteriorly, the occipital and temporo-sphenoidal lobes being very imperfectly developed. This "Aztec"-like youth,* with large bright eyes, an aquiline nose, and receding chin, had good powers of observation, but was only able to make use of a few monosyllabic words. He had considerable will power, and was not a low-grade idiot, though but little amenable to training. We have repeatedly seen boys and girls with heads measuring only 19 inches taught to read and write, and do industrial work. Quality of brain is an important factor, as well as quantity; in cases of microcephalus what little there is, is usually fairly active. The condition of *infantilism*, which is described later in connection with glandular inadequacy, is sometimes, however, a prominent factor. Many microcephalics are dwarfs.

Primary cases of **Hydrocephalus** are described, though the condition is usually secondary. In both varieties the hydrocephalus may be either internal or external, the latter being much the rarer form. Very different degrees of mental enfeeblement are met with in this type, and it is remarkable that a considerable amount of intelligence may subsist with a very watery brain, as in the case of a girl of eleven, peculiar, but only slightly imbecile, who continued to converse rationally till within an hour of her death, when it was found that her large globular skull† contained 20 ounces of fluid to 36 of cerebral matter. In some cases optic neuritis and other signs of pressure develop, and convulsions usher in a fatal termination. As a rule, educational methods are only

* See Plate IV., Fig. 1, and Plate III., Fig. 2, p. 59.

† See Plate XIII., Fig. 3, p. 109.

PLATE IV.



FIG. 1.—“FREDDY” (ROYAL ALBERT INSTITUTION).



FIG. 2.—(SPECIAL SCHOOL).



FIG. 3 (SPECIAL SCHOOL).

MICROCEPHALIC CASES.

PLATE V.

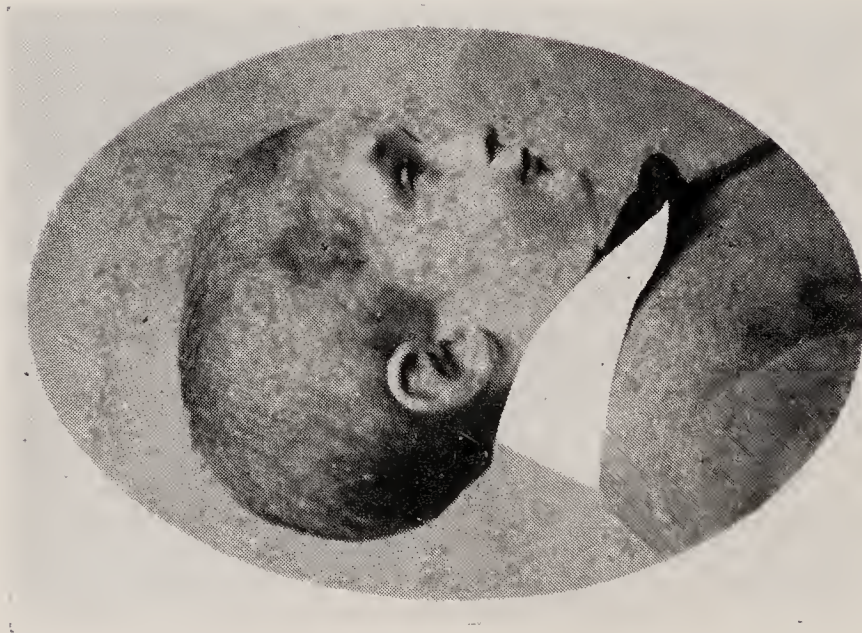


FIG. 1.



FIG. 2.

HYDROCEPHALIC TYPE.

To face page 61.

admissible when active symptoms have subsided. Plate V., Fig. 2, portrays a hydrocephalic youth, with a head circumference of $23\frac{1}{2}$ inches, when six years old. At eighteen there were marked signs of mental and physical deterioration. In some cases syphilitic or tubercular lesions have been found; these would suggest that the case belongs to the secondary class, as does also a positive Wassermann reaction.

In **Hypertrophic** cases the head is also enlarged, though not to the same extent as in hydrocephalus, no record existing of one over 25 inches; nor is the enlargement in the same directions, the shape being square rather than round. There is no excess of fluid, but an enlargement of the brain substance; the hypertrophy, however, affects the interstitial tissue only, being a diffuse gliosis. The distinction between these cases and hydrocephalus is not difficult, as will be shown in the next chapter.

A frequent congenital type, obtaining (in England, at least)* in nearly 5 per cent. of mentally defective children, in greater or less degree, is that which has been designated "**Mongol**" or "**Kalmuc**," owing to the physiognomical resemblance to those races. In these cases the skull is a short oval,† the transverse and longitudinal diameters approximating, while there is a tendency to parallelism of the frontal and occipital planes. In children of this type the brain is not necessarily small, but, according to Dr. A. W. Wilmarth,‡ whose observations are confirmed by Dr. Tredgold, there is a notable diminution in the size

* See paper on "Mongolian Imbecility," by G. E. Shuttleworth, *British Medical Journal*, September 11, 1909.

† See Plate XIII., Fig. 2, p. 109; Plate XV., Fig. 1, p. 141.

‡ A. W. Wilmarth, "Report on the Examination of One Hundred Brains of Feeble-minded Children," *Alienist and Neurologist*, October, 1890.

of the pons, medulla, and cerebellum. It has been suggested that the imperfect development of these parts may result in deficient expansion of the base of the skull, and that this explains the peculiar physiognomy. The brain is characterised by simplicity of development, and paucity of multipolar cells. The convolutions are large and coarse, with few secondary convolutions.* Babonneix,† Fromm,‡ Bernheim-Karrer,§ Lange,|| and others, have found abnormalities, such as hypoplasia, sclerosis, atrophy, and hæmorrhages, in the thyroid gland in some cases of Mongolism. So many other cases have, however, been examined and found to possess a normal thyroid that we are justified in assuming that when a lesion of the thyroid does occur it is an accidental complication.

The characteristic features of the Mongolian type will be discussed in the next chapter, which treats of diagnosis.

There is a large group of cases in which mental deficiency dating from birth depends on a **Neurotic** heredity. Probably in such cases there is original defect in constitution of neurones, with a tendency to irregular discharge and an imperfection of those inhibitory arrangements which are gradually evolved in the normal child. Dr. J. Langdon-Down long ago pointed out¶ the frequent association with the neurotic type of a "prow-shaped skull"—*i.e.*, a

* See Plate VI., Figs. 1, 2, and 3.

† Babonneix, "Contribution à l'Étude anatomique de l'Idiotie Mongolienne," *Archives de Médecine des Enfants*, July, 1909.

‡ Fromm, *Jahrb. für Kinderheilk.*, November, 1905.

§ Bernheim-Karrer, *Jahrb. für Kinderheilk.*, 1906, p. 26.

|| Lange, *Jahrb. für Kinderheilk.*, 1906, p. 753.

¶ *Mental Affections of Childhood and Youth*, J. Langdon-Down, 1887.

PLATE VI.

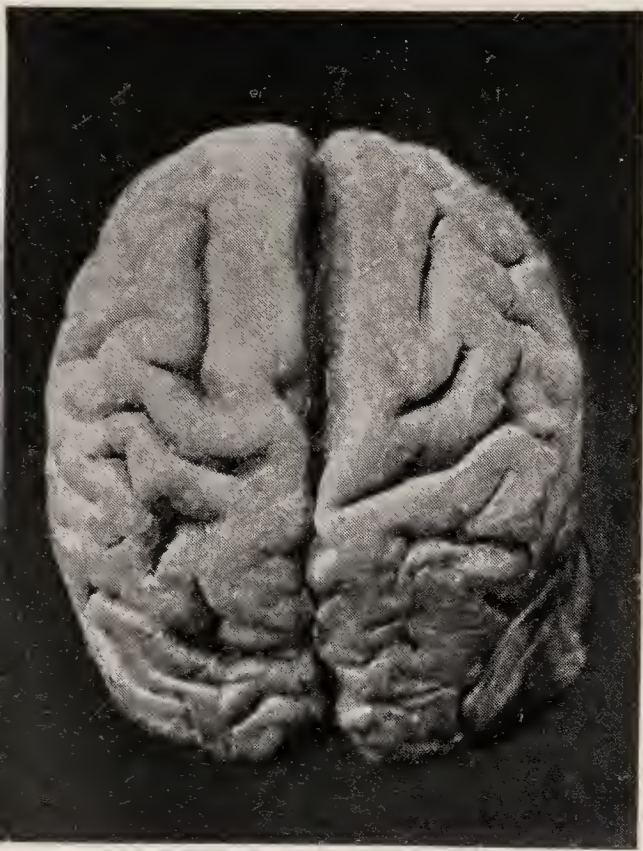


FIG. 1.
(CONVEXITY.)



FIG. 2.
(BASE.)

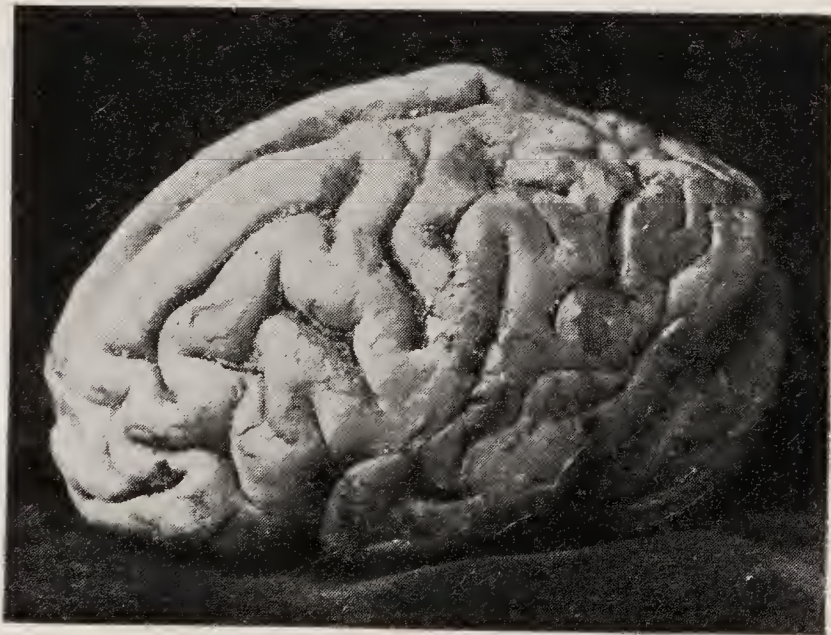


FIG. 3.
(LEFT LATERAL VIEW.)
"MONGOL" BRAIN.

PLATE VII.

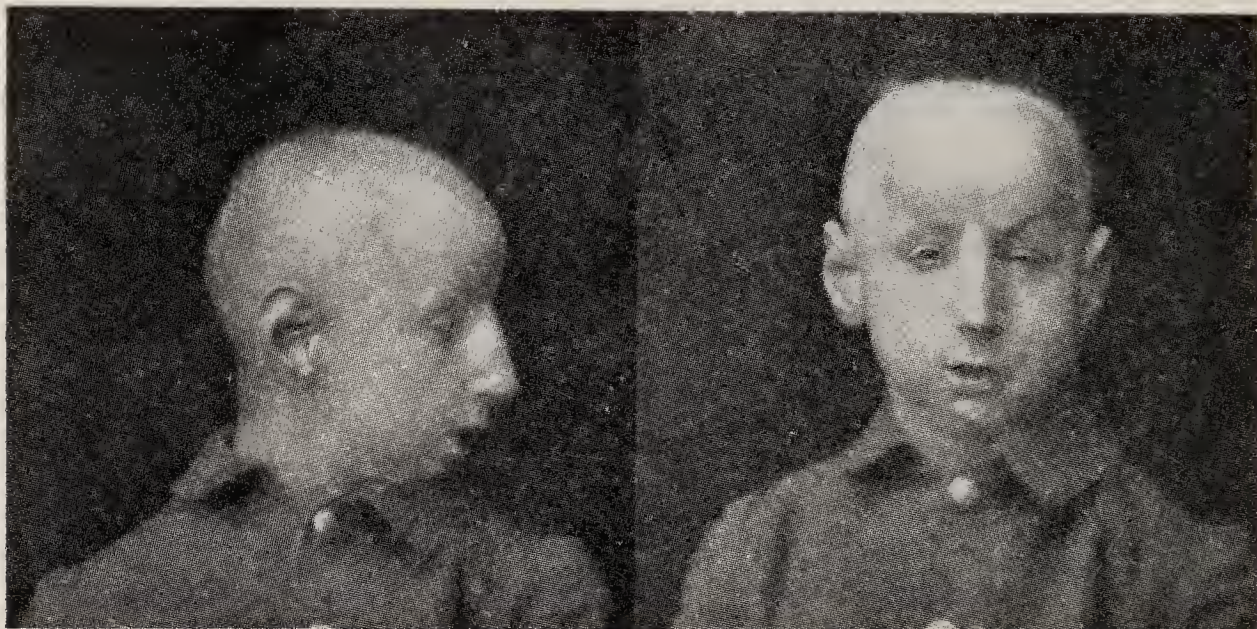


FIG. 1.—AMERICAN IMBECILE WITH "LEPTOCEPHALIC" CRANIUM.



FIG. 2.—AMERICAN HIGH-GRADE IMBECILE WITH SCAPHOCEPHALIC CRANIUM.

(J. Morehead Murdoch, M.D.)

From *Journal of Psycho-Asthenics*, vol. xi. (by kind permission).

cranium tapering anteriorly to a prominent ridge marking the position of the medio-frontal suture, synostosis of which has been deferred, owing to some intra-uterine check, which has also arrested the development of the cerebral centres, and rendered them unstable. Such cases have been designated *Scaphocephalic* ;* even if they show no marked intellectual defect in early childhood, they are apt to break down under the strain of second dentition or of puberty.

Cases which do not conform to any of the above types, but still show abnormal configuration, are spoken of by some authorities as **Simple Congenital**. This group has been well described by Dr. Fletcher Beach.† They show no marked deformity of the skull or limbs, but are usually below the average height. The expression of the face is vacant. There are several anatomical peculiarities, the so-called stigmata of degeneration. These are usually multiple, instead of occurring singly, as may happen in normal individuals. Found on the face, head, and hand, they take the form of obliteration or exaggeration of normal markings, such as those of the anti-helix or other parts of the ear, or consist in marked diminution in size of the mouth, orbital fissures, or lower jaw. The teeth are often irregular, and may be arranged in two rows, while the ear may be implanted too far back. At the present time, however, the custom of most authorities is to classify together under the term **Simple Primary Amentia** both this group and the larger one, which shows no abnormal configuration at all. Although there is no external

* See Plate VII., Fig. 2.

† *Types of Mental Deficiency*, Report of First National Conference of Special School Teachers held in Manchester (Tinling and Co., Liverpool), 1904.

abnormality, the brain, when examined, usually shows some of the pathological conditions already described. This class, although placed last on our list, includes much the greater number of all cases of primary mental defect.

Both **Epilepsy** and **Paralysis** may occur as a complication of primary amentia. These cases must be distinguished from cases of secondary amentia, which are due to epilepsy, or traumatism, or disease occurring at or after birth, and affecting both the motor and intellectual areas of the brain.

We have now traced the prominent pathological conditions of the several typical varieties of primary mental deficiency—viz.:

1. **Defects of Special Areas and Partial Atrophies** (including **Word-deafness** and **Word-blindness**).
2. **Microcephalus**.
3. **Hydrocephalus** (primary).
4. **Hypertrophic**.
5. “**Mongol**” or “**Kalmuc**” type.
6. **Primarily neurotic** (including **Scaphocephaly**).
7. **Simple Primary Amentia**.

In the intermediate group of cases, which we have referred to as **DEVELOPMENTAL**, we include those forms of mental weakness which evidence themselves at some crisis of development, such as the first or second dentition, or puberty, but are traceable to an original defect of nervous constitution. Epiloia or tuberous sclerosis, and some eclamptic, epileptic, syphilitic, and post-febrile cases may be thus classified.

Epiloia or Tuberous Sclerosis.—As long ago as 1880* Bourneville drew attention to a case which, at the

* *Archives de Neurologie*, 1880.

PLATE VIII.



FIG. 1.

CASES OF ADENOMA SEBACEUM.

FIG. 2.



To face page 65.

autopsy, showed tumours in the kidney, in addition to rounded areas of sclerosis in the brain. Subsequently he and others described similar cases, and in 1908 H. Voght reviewed thirty cases, including three of his own. These were called "tubero-se" or "hyper-trophic" sclerosis. Till recently it was difficult, if not impossible, to separate this group as a clinical entity. The knowledge, however, that sometimes the cerebral and renal changes coexist with the skin affection known as "adenoma sebaceum" may enable us to diagnose the condition during life. Hence the group designated by some "**Tuberous Sclerosis**," and by Sherlock "**Epiloia**," which we now place among the clinical types. Epiloia is a rare developmental disease, characterised by numerous rounded tumours scattered throughout the cortex of the brain; they may form projections on the surface, and also extend into the subjacent tissue. In addition to the tumours in the kidney, tumours may also be found in the heart (rhabdomyomata), and in the breast, thyroid, thymus, pancreas, and duodenum. The skin tumours (designated by dermatologists *adenoma sebaceum**) are seen chiefly on the face, round the nose and mouth, and on the forehead; they are "composed of little red nodules of sebaceous gland tissue embedded in a vascular matrix." Dr. John Thomson,† to whom we are largely indebted for our description, says that the brain condition probably dates from the seventh month of foetal life, or soon after.

The convulsions which generally occur may begin in very early life, but are often deferred till late child-

* See Plate VIII.

† John Thomson, M.D., "Congenital Mental Defect in Childhood," *Diseases of Children*, edited by Garrod, Batten, and Thursfield. London, 1913, p. 882.

hood. The child may show no sign of mental defect till after convulsions have continued for some time.

Eclampsic and Epileptic Cases.—A large number of cases of mental deficiency are attributed by parents to **convulsions during dentition**. Thickened cerebral membranes, and sometimes thickened skulls, are seen in many of these cases, with consequent atrophic changes in the brain substance. In cases of persistent **epilepsy**, with mental weakness, the same lesions are sometimes met with, though, of course, the *fons et origo mali* is to be looked for in the minute structure of the nervous tissue. As a matter of fact, there is no clear distinction between infantile convulsions and epilepsy. Most infants who have teething fits are of neurotic heredity, and some of them are the victims later on of “idiopathic” epilepsy.

When epilepsy does exist from an early age in mentally deficient children, it should be regarded as a complication; it is a complication to which many defectives, especially low grade cases, are liable. It is often associated with hydrocephalus, and is frequently noticed in syphilitic cases. In Mongolians it is uncommon. Sometimes epileptic seizures, occurring for the first time in children, are followed by signs of mental deficiency, although previously the child was known to be of normal intelligence. These cases should be described as cases of secondary amentia, due to epilepsy. The classification of a particular case is often difficult. Idiopathic epilepsy cannot as a rule be diagnosed till after the primary dentition is complete, while it is sometimes impossible to differentiate slight mental defect from mere dullness or backwardness till six or even seven years of age. In cases of epilepsy, as in some other cases of mental defect, especially if there is any history of

traumatism, a careful X-ray examination may show an injury to the skull or other pathological condition amenable to surgical treatment.* The Roentgen rays have revealed definite changes in many cases, according to Schüller † in about 30 per cent. The most frequent changes are those traumatically produced—*e.g.*, “fissures, defects, depressed fractures, thinning or thickening of the skull wall, projectiles, etc.” Another group of frequent skull changes in epilepsy consists in anomalies in shape and size of the skull, including microcephaly and pseudomicrocephaly, hydrocephalus and craniostenosis.

It is important to examine the Sella Turcica and its immediate neighbourhood to see if there is any indication of an abnormal condition of the pituitary gland. Epilepsy sometimes follows bursting fractures of the base of the skull; in such cases the Pituitary body is liable to be injured.‡ There is, however, another class of patient, according to Dr. George C. Johnston,§ who, with an uneventful history, no injury, and previous good health, between fifteen and twenty-five years of age begins to suffer from attacks of petit-mal, gradually increasing in severity and frequency. In such cases there are often changes in the Sella Turcica—viz., “for the most part an overgrowth of the anterior and posterior clinoidal processes, which, in addition to an increase in area and

* See Plates XIV. and XV, p. 112.

† Dr. Arthur Schüller, *Roentgen Diagnosis of Diseases of the Head*, p. 239. Translated by F. F. Stocking, M.D. London, Henry Kimpton, 1918.

‡ Harvey Cushing, M.D., *The Pituitary Body and its Disorders*, p. 272. J. B. Lippincott Company.

§ George C. Johnston, M.D., “The Pituitary Gland in its Relation to Epilepsy,” *Surgery, Gynæcology, and Obstetrics*, April, 1914.

length, are slowly folded over and down upon the pituitary gland, enclosing it within a bony basket. In addition to this process, which evidently is one requiring a considerable length of time for its accomplishment, there is very often noticeable a decided difference in the size of the pituitary fossa, and therefore of the gland itself. The fossa is thus largely or completely roofed over in some cases in which the shadows of the anterior and posterior clinoidal processes not only meet, but overlap. The frequency with which this condition has been found is quite striking." "In addition to this overgrowth of the clinoidal processes, a large proportion of the cases show distinct increase in density in the bony tissues forming the roof of the orbit, the sphenoidal sinus, and the ethmoidal cells. In quite a number of cases the sphenoidal cells are decidedly blocked with newly formed bony tissue. This condition resembles, to a marked degree, the appearance of the skull in general acromegaly, and has been interpreted by us as a localised acromegaly." Dr. Johnston goes on to say that if in the skiagrams of cases in this class the clinoidal processes do not show, it is probably hypopituitarism, due to hypophysial struma with enlargement of the gland and pressure atrophy of the processes. He suggests that we want an operation for the removal of one or both processes in choked pituitary before the gland has suffered too long.

Surgical treatment is sometimes useful in cases of **Status Epilepticus**, which may be due to a localised meningitis serosa externa. Dr. Leonard Guthrie* states that "a number of such cases in which the subarachnoid cisterns have been opened and drained,

* *Diseases of Children*, edited by Garrod, Batten, and Thursfield, 1913, p. 714.

with great relief to the patient, have recently been recorded."

As regards definite pathological changes found in epilepsy, we must remember that Claude and Schmiergold,* on studying seventeen cases of epilepsy found the thyroid gland affected in all; in some the parathyroids were affected as well, and also the pituitary gland. In one the ovaries were affected, while there was a hæmorrhagic cyst in one adrenal gland, and in another case there were hæmorrhages in both adrenals. This is important in connection with what we shall have to say directly about glandular inadequacy.

Dr. J. J. M. Shaw† believes the manifestations of epilepsy are a discharge caused by a sudden anæmia of the cortex, produced by stasis and agglutination of the nucleo-proteid coagulative elements of the blood in the cortical capillaries. This is rendered possible by an unusual proclivity to agglutination, and a hypo-alkaline state of the blood. The risk is increased at the inception of sleep and at advancing stages of its profundity, and, of course, by the ingestion of nucleo-protein. The post-paroxysmal changes in the blood and urine indicate a rapid disintegration of nucleo-proteid. This is corroborated by post-mortem findings in the cortical capillaries, and in the cortical cells, which are rich in nucleo-proteid. Alkalies reduce the coagulative tendency, but by facilitating metabolism only reduce the convulsive attacks temporarily. Bromides have a particular affinity for

* Henri Claude and A. Schmiergold, "Étude de 17 Cas d'Épilepsie au Point de Vue de l'État des Glandes à Sécrétion interne," *Revue Neurologique*, 1908, p. 860.

† J. J. M. Shaw, M.A., M.D., *Journal of Mental Science*, 1914, p. 398.

nucleo-proteins, and act by inhibiting their rapid metabolism, while oxalates are also of value in treatment. There is an inherent chemical instability of the nucleo-proteid elements of the brain and blood, which may be hereditary, or due to the absence of a regulating hormone, at present unknown.

Such investigations confirm the idea that epilepsy is essentially toxic in origin. In recent years, however, and especially since the war, Pierce Clark, and others have contended that many cases of epilepsy are psycho-genetic in origin. The history and results of treatment in some cases appear to establish this theory. Whether we adopt the psycho-genetic theory or not it must be admitted that the old distinctions between hysterical and true epilepsy have, to some extent, broken down.

As will be fully explained in the next chapter when discussing ætiology, although one investigation* sets forth that in nearly 50 per cent. of cases of epilepsy in children the Wassermann reaction showed a syphilitic infection, and that when the investigation is extended to the families giving a negative or doubtful reaction the percentage is higher still, we do not consider that it has yet been proved that syphilis is the most frequent cause of epilepsy.

In regard to **Syphilitic** cases, our ideas have been modified in recent years by the careful investigations of Sir Frederick Mott, and by the Wassermann reaction. In the last edition we suggested that the number of cases of mental defect due to syphilis was larger than was generally realised. Now we know

* Kate Fraser, M.B., and H. Ferguson Watson, M.B., "The Rôle of Syphilis in Mental Deficiency and Epilepsy; a Review of 205 Cases," *The Journal of Mental Science*, October, 1913.

PLATE IX.



INHERITED SYPHILIS.

To face page 70.

that syphilis is responsible for a considerable percentage of cases, many of which show neither the ordinary syphilitic stigmata nor any evidence of a gross lesion in the central nervous system. This is not surprising, considering that the "gross changes in the brain which are known to be due to congenital syphilis are not compatible as a rule with a continuance of life."*

Congenital syphilis affecting the nervous system of infants and young children may "give rise to a meningitis, a hydrocephalus, to an endarteritis, to gummata, to a juvenile tabes, and to a juvenile general paralysis of the insane."†

As regards the particular type of mental defect that may result from congenital syphilis, Dr. Plaut,‡ working in Kraepelin's clinique, showed that in cases of imbecility with motor paralysis, syphilis played an important, though previously unsuspected, part. This has since been confirmed by Dr. Leslie Gordon§ and others. The relation of syphilis to hydrocephalus is well known. Apart from these types, congenital syphilis, according to Dr. Gordon, "is as likely to cause a simple, uncomplicated form of congenital mental defect as it is to cause any particular type"—a statement which is in accordance with our own experience. In some of these cases the mental

* H. R. Dean, M.B., "An Examination of the Blood-Serum of Idiots by the Wassermann Reaction," *Proceedings of the Royal Society of Medicine, Neurological Section*, vol. iii., June, 1910, p. 117.

† F. E. Batten, M.D., *Diseases of Children*, edited by Garrod, Batten, and Thursfield, 1913, p. 850.

‡ Plaut, *Die Wassermannsche Serodiagnostik der Syphilis*, Jena, 1909.

§ J. Leslie Gordon, M.D., "The Incidence of Inherited Syphilis in Congenital Mental Deficiency," *Lancet*, September, 20, 1913.

defect is simply the result of inadequate function of those endocrine glands, especially the thyroid, responsible for normal mental development.

One type of mental defect is known to be always due to syphilis—viz., **Juvenile General Paralysis of the Insane**. In these cases mental deterioration does not usually show itself until the period of the second dentition, though Sir Frederick Mott* says the mental deficiency may date from birth. They progress in much the same manner as general paralysis of the insane in the adult, death occurring a few years after the onset of the symptoms. A full description of these cases will be found in the next chapter. At the autopsy there is found thickening of the cerebral arteries (from endarteritis) and of the meninges, with marked atrophy of the convolutions; the sulci are wide, the ventricles dilated, the ependyma granular, and the brain wasted as a whole (Plate IX. represents this type). "On microscopical examination, the fibres of the cortex have to a large extent disappeared, and there is almost complete absence of the tangential fibres of the cortex. The cells of the cortex show various stages of chromatolysis; many have already disappeared or been replaced by calcareous deposits. The pyramidal tracts, and in some cases the posterior columns of the cord, show degeneration."†

Among other pathological conditions, dating from early life, are those resulting from meningeal hæmorrhage occurring from undue pressure during parturition, the injurious element being, however, prolonged pressure rather than instrumental interference. In these cases atrophic changes take place in the Rolandic

* F. W. Mott, M.D., *Archives of Neurology*, 1898, i. 250.

† F. E. Batten, M.D., *Diseases of Children*, edited by Garrod, Batten, and Thursfield, 1913, p. 851.

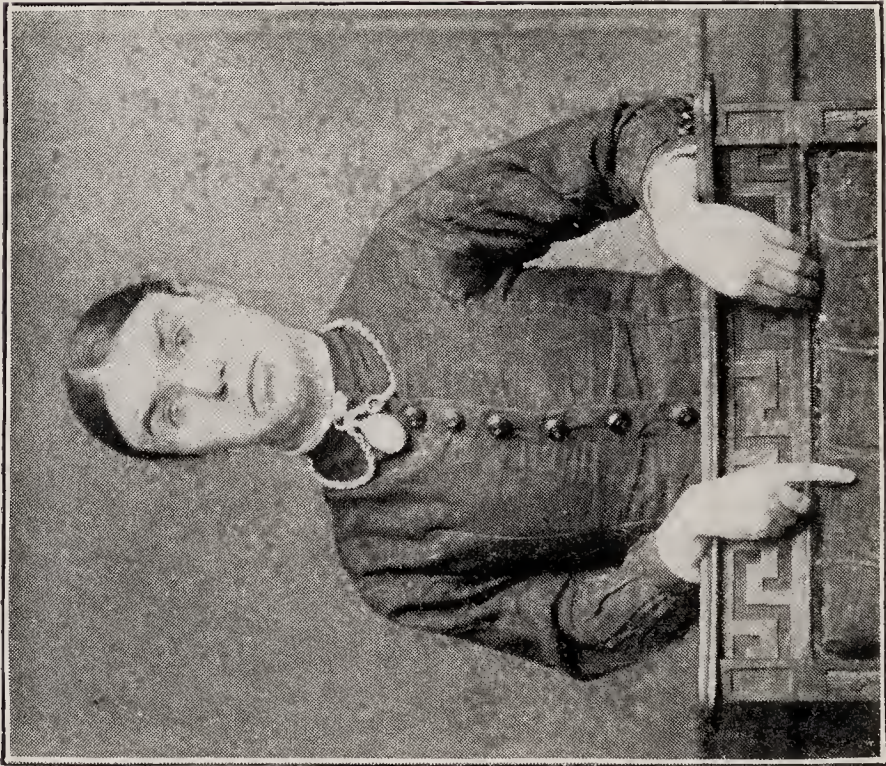


FIG. 1.—GIRL (R.A.I.).

BIRTH-PALSY.



FIG. 2.—BOY, SHOWING ATHETOSIS (R.A.I.).

area, and as a consequence ensue spastic contractions of the limbs (bilateral or unilateral), with inco-ordination and often "athetoid," "choreic," or "perverse" movements. The atrophic changes, however, thus produced are indistinguishable, when examined at a late stage, from those due to an encephalitis or other toxic cause of progressive cerebral degeneration, and the latter are considered now to be more frequently to blame. The intellectual deficiencies of children suffering from "**Birth-palsies**" are sometimes more apparent than real, the intelligence which they possess being masked by their physical infirmities.* The greater the mental defect, the more likely it is that toxæmia rather than trauma is accountable.

As regards SECONDARY cases the two main divisions are **Traumatic** and **Post-febrile**, and in each the characteristic lesions are the products of inflammatory processes. Thickened and adherent membranes, following meningeal inflammations and interfering with the due supply of blood to the cerebral cortex, have been noticed in many; whilst porencephalus,† which may be considered in some instances to be the terminal condition of an acute inflammatory lesion, has not infrequently been observed. It must be noted, however, that some of the cases in which sclerosis is found are not strictly secondary, as was at one time supposed, but belong to the "Tuberous Sclerosis" group, a developmental type.

Among the cases probably due to meningitis is a peculiar form of enlargement, in one direction at least, of the skull, known as **Oxycephaly**, or Tower skull (French, *Tête à tour*; German, *Thurnschädel*). This type is not common, and has seldom been de-

* See Plate X., Figs. 1 and 2.

† See Plate II., Fig. 1, p. 55.

scribed from the mental aspect. It has sometimes been confused with other types. For most of the descriptions we are indebted to ophthalmic surgeons, as the ocular defects, which are usually the most marked, have attracted more attention than the mental. Indeed, Patry states that the intelligence is usually normal. In some cases, however, there has been marked mental defect. It is probable that slight mental defect would usually be found if the investigations were made by an expert. A fairly typical case was shown by Dr. Potts at the meeting of the Society for the Study of Disease in Children in Birmingham, in June, 1908, two illustrations of which we now reproduce.* This boy required education in a special school, though he was not very defective. Contrary to what is usual, he had no ocular defect. The case described by Dr. Rosa Ford in the *Ophthalmoscope*, April, 1907, was also mentally defective. The condition has been well described by Patry† in a monograph published in 1905, which dealt with ten cases of his own, and, in addition, with the records of fifty-eight published cases. Typical cases are very striking. There is a dome-shaped mound rising up from the forehead, separated from the temples by shallow furrows; the supra-orbital ridges are absent, and the eyes proptosed and large. At the same time there is an atrophy of the optic nerve, post-neuritic in type. The exophthalmos is due to malformation of the orbit, the upper wall of which slopes down towards the floor at a more acute angle than in the normal. Many of these patients

* See Plate XI.

† *Contribution à l'Étude des Lésions Oculaires dans les Malformations Crâniennes spécialement dans l'Oxycéphalie*, par André Patry. Paris, 1905.

PLATE XI.



FIG. 1.



FIG. 2.

OXYCEPHALIC CASE.

suffer greatly from headache, some also from fits during childhood. Patry states that the cranial deformity commences in the first year of life, and is due to premature synostosis of the coronal and frontal sutures. This theory receives confirmation from the deep convolution markings found in the vault, the expanding brain being driven up into the vertex. Hence the suggestion that they would be benefited by craniectomy. Patry endorses Virchow's view that the primary cause both of the cranial deformity and the optic neuritis is a meningitis.

Emotional shock, such as fright to a young child confined in a dark cellar, or from the bite of a dog, is sometimes assigned as a cause of mental defect. The experimental investigations of Dr. G. W. Crile* have shown us that shock and fright are followed by definite changes in the brain cells, as shown by swelling and rupture of the nuclei, the cells being hyperchromatic during fright, and exhausted after. It is not unreasonable to suppose that some never return to their normal state. Fright is an important factor in some cases of epilepsy, and psychic causes may seriously upset the mental balance in defectives as well as in the normal, but there will often be found as well some primary underlying cause of the mental defect. Possibly, too, **trophic** changes, brought about by the sympathetic system, are important factors. At any rate, cerebral atrophy, as if from arrested development, is found in some of these cases. We recognise also **Toxic** cases, such as those of infants drenched with alcohol or narcotics, in which the interference with the proper nutrition of the nerve elements, and the poison introduced, may have far-reaching effects.

* George W. Crile, M.D., "Anæsthesia and Anoci-Association," *Surgery, Gynæcology, and Obstetrics*, June, 1913.

The dangers to infants from alcohol are very real and very frequent, as all readers of Mr. George R. Sims's spirited article, "The Cry of the Children," reprinted from the *Tribune*, must admit. Fortunately, the Children Act now excludes infants and children from public-houses, but much of the evil still remains. There is much ignorance of the harm done to nursing mothers by the taking of alcohol. The time, too, is more than ripe for some legislation which will make it impossible to advertise as safe for children proprietary medicines which contain morphia and other narcotics.

Under the title of **Amaurotic Family Idioey** some curious and hopeless cases of infantile cerebral degeneration, with symmetrical changes at the macula lutea, commencing about three months after birth, and observed almost exclusively among Jewish children, have been described by Sachs of New York and other American authorities, and by Mr. Waren Tay and Drs. Kingdon and Risien Russell* in this country. The first signs are weakness of the muscles of the back and neck, and imperfection of sight. With the ophthalmoscope there is seen in the macula an oval whitish-grey patch, with softened edges slightly raised above the general surface of the retina. The *fovea centralis* appears as a dark cherry-red spot in the centre of the patch. Later on there is optic atrophy, and complete blindness. The senses of taste and hearing are preserved, the latter being particularly acute. The muscles become weaker and weaker, the whole body becoming involved. There is marked emaciation, and, in the final stages, rigidity of the extremities, with retraction of the head. There is no fever. The thoracic and abdominal organs are

* *Med. Chir. Trans.*, vol. lxxx., p. 87.

normal. The cerebro-spinal fluid shows no change. Death usually occurs in less than two years, from pneumonia or cardiac failure. The cause is possibly a toxin, causing degeneration of the cortical neurones, the optic nerves, and the pyramidal tracts throughout their whole course. Dr. Poynton,* who has also written on the subject, after seeing four cases and studying one by modern neurological methods, ascribes the condition to "some inherent bio-chemical property of the protoplasm of the cells." He states that the disease is primarily one of the interfibrillar protoplasm of the cells, and describes the changes in the nerve cells as "swelling of the cell body with frequently gross alteration in shape; disappearance of Nissl bodies; excentric position of nuclei; vacuolisation of the protoplasm." In one case Sir Frederick Mott had the blood and cerebrospinal fluid examined for the Wassermann reaction, with a negative result, thus confirming the clinical experience that the disease is not a result of syphilis.

The condition just described must not be confused with another form of cerebral degeneration seen in older children, known as **Cerebral Degeneration with Symmetrical Changes in the Maculæ**. This also is a familial disease, and may be partly due to consanguinity of the parents. In some cases syphilis has been a factor. The affected children are normal in early life, and make a good start at school. At the age of six or seven they begin to be difficult, fail to advance, and lose the power of reading; they do not see well, and it is noticed that the head is turned to the side, presumably in an effort to see in spite of the central scotoma which is believed to be present.

* "*Amaurotic Family Idiocy*," *Brit. Med. Journal*, May 8, 1909, p. 1106.

There is marked mental deterioration, with the development of dirty habits, but no muscular weakness in the early stages. The distinguishing feature is the association of mental failure with a curious pigmented condition round the maculæ. The disease slowly progresses, the child dying in seven or eight years, usually from some intercurrent disease.

Glandular Inadequacy.—The cases just considered are due to the presence of toxins. We now pass to an important group, some of which also have a toxic origin, but the outstanding features of which are due to the absence of a necessary element from the economy. Inadequacy of the thyroid and other glandular secretions are frequent causes of serious maldevelopment, often associated with mental defect. It is significant that Leri* and Ruju† found lesions of the adrenal glands in anencephalic foetuses. Leri pointed out that it is not the atrophy of the adrenal that determines the anencephaly, for that is due to an inflammatory disease of the central nervous system, which has obtained a hold owing to the absence of the protective lipoids usually provided by the adrenals. These ideas have recently been elaborated by Sir Frederick Mott,‡ in describing his investigations of the testicles in dementia præcox and congenital mental defect. It is in the cortex of the adrenal glands that lesions are found, and he suggests that one of the functions of these glands is to provide and store lipoid

* M. André Leri (de Paris), "Les Capsules Surrénales dans l'Anencephalie," *Revue Neurologique*, 1908, p. 859.

† A. Ruju, "De l'Aplasie des Capsules Surrénales chez les Anencephales," Estratto dagli Studi Sarsaresi, Anno iv., sez. 2, fasc. 1, 1905. See *Revue Neurologique*, 1906.

‡ Sir Frederick Mott, K.B.E., M.D., "Normal and Morbid Conditions of the Testes from Birth to Old Age in 100 Asylum and Hospital Cases," *Brit. Med. Journal*, 1919, vol. ii., p. 655.



FIG. 1.

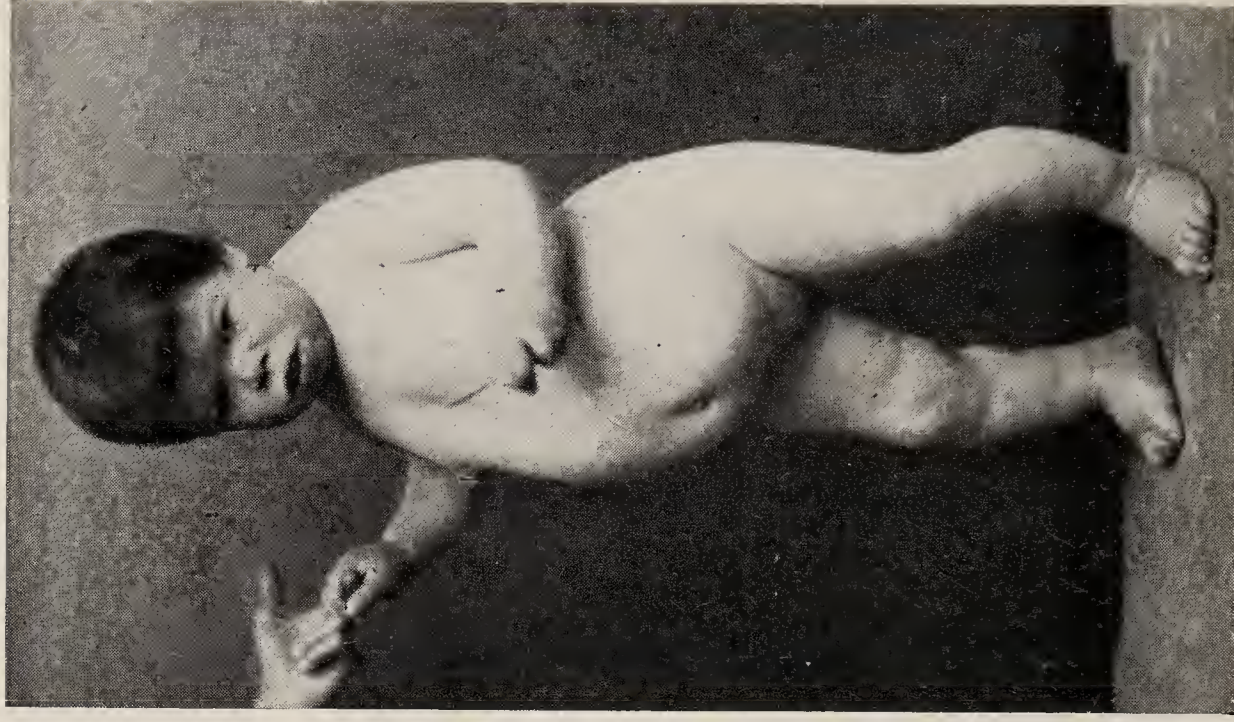


FIG. 2 — "SARAH," AGED 22 YEARS.
(Formerly in Royal Albert Institution.)
To face page 79.

SPORADIC CRETINS.

for the building up of the developing nervous system. In addition the lipoids form a protecting barrier against toxins. There is a close association between the adrenals and the sexual glands, and of both these glands with the thyroid, the proper function of which has such a marked influence on mental and physical growth. The glandular failure may be due either to inherent defect or the action of toxins. Toxins are specially injurious in the early weeks of foetal life before the adrenal function is developed. McCarrison* has shown that in cretinism the cause of thyroid failure is often a toxic one.

Cretinism is the best known of these conditions; its full development, which usually takes place after birth, produces mental deficiency. Cretins are often divided into two classes—*endemic* and *sporadic*. **Endemic** cretins are met with in goitrous districts, and in affected families; in this class the thyroid is often enlarged, though functionally inactive. **Sporadic** cretins are met with in all parts of the world; the thyroid is atrophied or altogether absent.

Intra-uterine **Cretinism** fully developed results usually in the death of the foetus, which displays a curious stunted conformation of the body, with redundant skin, thickened cranial bones, and imperfectly formed face. The essential lesion is absence or atrophy of the thyroid gland. There are often fatty tumours in the supraclavicular regions. Cases of sporadic cretinism usually met with in this country differ from the above in the fact that the child appears normal at birth, but the characteristic conformation and mental hebetude are gradually developed. The condition can usually be recognised

* Robert McCarrison, M.D., *The Thyroid Gland*. (London. Baillière, Tindall and Cox). 1917.

at six months, though in rare instances it is not possible to do so till later, sometimes not even till the child is six or seven years of age. Progressive atrophy of the thyroid brings about a dwarfing of the physical growth and of the mental powers; if the patient arrives at adult life, he still retains the bodily and mental stature of a child (see Plate XII., Figs. 1 and 2). The above description applies to the



FIG. 1.—SPORADIC CRETIN GIRL OF 22 (R.A.I.).

myxædematous cretin, which is the type usually seen in Europe. Occasionally, however, in England and frequently in the Himalayas there is seen the *nervous cretin*, a condition of cretinous idiocy with cerebral diplegia and tetany, the disability being more especially of the nervous system. These occur usually among the very poor, and are quite helpless. There is, as a rule, complete deaf-mutism. The changes in the thyroid itself have been fully described by Dr. McCarrison, who has established that in sporadic

cretinism they "are due to toxic agencies acting through the maternal blood."*

At this stage we may consider the condition of **Infantilism**, some varieties of which are due to disturbances of the functions of glands of internal secretion, and which may be associated with mental defect. The term merely denotes a group of symptoms. The essential feature is that the genital organs remain immature, while just as the primary sexual characteristics of adult life fail to appear at the proper time, so also do the secondary sexual characteristics of body and mind. In some cases the intelligence is fairly normal, but generally it is weak and childish. Infantilism is not a prominent feature of the mentally defective, except in some cases of microcephalus, mongolism, and severe spastic diplegia. Dr. John Thomson† classifies the cases under three headings. The first group, which he calls the *Idiopathic*, shows no serious general or local disease. In the second, or *Cachectic*, serious general disease or poisoning exists. The most common disease is chronic tuberculosis, next syphilis; malaria, leprosy, and some of the common infective diseases, have also been blamed, as also has any form of heart disease that begins early in life, and causes much interference with the general circulation. One type, now well known owing to the writings of Dr. Herter,‡ is associated with intestinal disorder, usually with cœliac disease. In many cases of infantilism polyuria has been noticed; sometimes this has been

* Robert McCarrison, *The Thyroid Gland*, p. 133 (London: Baillière, Tindall, and Cox). 1917.

† "Infantilism," *System of Medicine*, Allbutt and Rolleston, vol. iv., part i., p. 486.

‡ C. Herter, *Trans. Assoc. Amer. Phys.*, 1908, xxiii., p. 260.

due to diabetes insipidus; in other cases, however, as Dr. Leonard Parsons* and others have shown, the primary lesion is interstitial disease of the kidneys. The third group depends on gross lesions or defects of important internal organs. The organ most often at fault is the thyroid gland, and Dr. Thomson points out that one type of the condition constitutes the mildest degree of cretinism, with symptoms so slight that the real cause is often overlooked. He brings forward evidence, however, to show that defective action of other internal organs may produce the same symptoms. The account of two cases in which the pancreatic secretion was proved to be in abeyance, and in which development resumed its normal course on the regular administration of pancreatic substance, is particularly interesting. Dr. Sajous has recently called attention to the frequent association of aplasia of the thymus with defects of development, and to absence of that gland in cases of amentia, as recorded by Bourneville, Morel, and others.†

Pituitary Infantilism is a well-defined variety; the possible connection between hypopituitarism and some forms of epilepsy has already been discussed. It has also been suggested that sometimes the suprarenal glands are at fault. Dr. A. E. Garrod‡ refers to a case in which a marked advance in development followed the administration of suprarenal tablets. In some cases, such as those described by Dr. Hastings

* Leonard Parsons, M.D., "Infantilism associated with Chronic Interstitial Nephritis," *Lancet*, September 2, 1911.

† *New York Med. Journ.*, Jan. to Nov., 1915 ("Hemadenology").

‡ A. E. Garrod, *Diseases of Children*, edited by Garrod, Batten, and Thursfield, p. 583.

Gilford,* under the name of "ateleiosis," the underlying cause is more obscure.

Another kind of defect which may have serious consequences is **Sense-deprivation**. When this is associated with primary mental defect, as not infrequently happens, the difficulties of training are greatly increased; if both sight and hearing are absent, attempts at education must inevitably end in failure. If, however, the mental defect is due to the sense-deprivation, then proper education will remove that defect, provided it is begun at an early age. Should it be unduly delayed or altogether neglected, permanent secondary amentia may be the result.

In conclusion, we may briefly sum up the various secondary types of mental weakness, the pathological circumstances of which we have described, as follows:

A. DEVELOPMENTAL CASES:

1. **Epiloia**, or **Tuberous Sclerosis**.
2. **Eclampsic**.
3. **Epileptic**.
4. **Syphilitic** (inherited).
5. **Paralytic** (spastic, etc.).

B. ACCIDENTAL OR ACQUIRED:

1. **Traumatic**.
2. **Post-febrile** (including **Oxycephaly**).
3. **Emotional**.
4. **Toxic** (including **Amaurotic Family Idiocy** and **Cerebral Degeneration with Symmetrical Changes in the Maculæ**).
5. Due to **Nutritional Defect** (including **Cretinism** and **Infantilism**).
6. Due to **Sense-deprivation**.

* Hastings Gilford, *The Disorders of Postnatal Growth and Development*, 1911.

We shall find that these divisions, together with those of the primary types previously given (p. 64), will be serviceable in considering points in the etiology, diagnosis, and prognosis of mental deficiency, which we shall proceed to discuss in the next chapter.

CHAPTER V

ETIOLOGY, DIAGNOSIS, AND PROGNOSIS

IN connection with mental defect in children there is no more interesting or important subject than its ETIOLOGY. At one time this was an obscure and difficult problem, but such advance has been made in our knowledge in recent years that we are now in a position to say that in primary amentia a neuropathic inheritance is the most effective factor. In some cases other influences are undoubtedly accountable, but the majority of cases of primary amentia originate in this way; even in secondary amentia a morbid heredity sometimes has an important influence in deciding the issue. These views were foreshadowed in 1892 by Dr. Shuttleworth, who then recorded his statistics (in conjunction with those of Dr. Fletcher Beach) in an article in Hack Tuke's "Dictionary of Pschyological Medicine," in which 1,200 cases observed at the Royal Albert Asylum, and 1,180 cases at Darenth Asylum, were collated. **Hereditary mental weakness** (insanity or imbecility) was recorded in 21.38 per cent. of cases, but in addition **epileptic** or **neurotic inheritance** showed a percentage of 20, making a total of 41.38 per cent. of cases which could be tabulated as having a **neuropathic inheritance**, a proportion which tends to increase with further knowledge of the antecedents. Dr. Caldecott of Earlswood Asylum found that over 70 per cent. of his patients had neuropathic ante-

cedents. "In Germany, Koch came to the conclusion that it accounted for 60 per cent. of cases. In Switzerland (Canton of Berne), the census of 1893 showed that heredity was present in 55 per cent. of idiots; whilst in Norway, Ludwig Dahl found it to occur in 50 per cent. of cases."* It is important to remember that in Dr. Shuttleworth's inquiry, as in most of the earlier ones, no house-to-house visitation was made in order to elicit additional information, and to examine both the parents. When this procedure has been adopted, and searching inquiries made into the family records, convincing evidence of the effects of a morbid heredity has usually been obtained. One of the most careful inquiries on these lines was conducted by Dr. Tredgold,† who studied a large number of cases in the pauper asylums of London, and in 150 obtained "full particulars of the family for at least three, and sometimes four, generations." He traced a neuropathic inheritance in 82·5 per cent. All those who have conducted an inquiry of this kind will agree with Dr. Tredgold that the reason why he obtained a considerably higher percentage than most other observers is "entirely a question of the method adopted." "Again and again," he says, "have I discovered by a little questioning a well-marked history of insanity, of which no record whatever existed in the case-books. The taking of a reliable family history involves much time and trouble. Several members of the family must be seen, and their confidence must be gained before anything like the true state of affairs can be elicited. It

* A. F. Tredgold, *Mental Deficiency*, 1920, p. 41.

† A. F. Tredgold, *Report and Evidence of the Royal Commission on the Care and Control of the Feeble-minded*, 1908, vol. i., p. 396.

is not only that the relatives are averse from giving information upon what they regard as their private affairs to a complete stranger, but that very often they do not really know until they have talked the matter over amongst themselves." We may add that it is extraordinary how ignorant even well-educated people often are as to the illnesses and causes of death of their forbears. In the case of insanity and consumption, in particular, it is a common practice to gloss over the real nature of the trouble, and keep many members of the family in complete ignorance.

Dr. Tredgold's statistics have been amply confirmed by the inquiries in America of Dr. Goddard, the Director of the Research Laboratory of the Training School at Vineland, New Jersey, for Feeble-minded Girls and Boys. At this institution a laboratory and Department of Research for the study of feeble-mindedness was opened in September, 1906; since 1910 it has employed *field-workers*. "These are women highly trained, of broad human experience, and interested in social problems. As a result of weeks of residence at the Training School, they become acquainted with the condition of the feeble-minded. They study all the grades, note their peculiarities, and acquaint themselves with the methods of testing and recognising them. They then go out with an introduction from the Superintendent to the homes of the children, and there ask that all the facts which are available may be furnished, in order that we can know more about the child and be better able to care for him, and more wisely train him.

"Sometimes all necessary information is obtained from the one central source, but more often, especially where the parents are themselves defective, many

visits to other homes must be made. Parents often send the field-worker to visit near and distant relatives, as well as neighbours, employers, teachers, physicians, ministers, overseers of the poor, almshouse directors, etc. These must be interviewed, and all the information thus obtained must be weighed and much of it verified by repeated visits to the same locality, before an accurate chart of the particular child's heredity can be made."*

In this way Dr. Goddard has been able to study more than 300 families. His conclusions are that "Feeble-mindedness is hereditary, and transmitted as surely as any other character." Dr. Goddard's researches have, however, gone further than this, for he claims to have shown that, putting Mongolianism on one side, mental defect is a Mendelian *recessive* character. As a consequence, not every person who carries the taint shows it, as would happen if mental defect were a Mendelian dominant characteristic; many people unconsciously carry the taint in their germ-cells, without showing any sign; it only becomes evident in certain members of the families where both parents have a mentally defective heredity. "According to a recent calculation, made in one of the bulletins of the Eugenics Record Office, about one-third of the population in the United States is thus capable of conveying mental deficiency, the 'insane tendency,' epilepsy, or some other defect."†

It is not necessary to elaborate the details of Men-

* H. H. Goddard, Ph.D., *The Kallikak Family : a Study in the Heredity of Feeble-mindedness*. New York: The Macmillan Company, 1912. Also *Feeble-mindedness : Its Causes and Consequences*. New York: The Macmillan Company, 1914; and *Psychology of the Normal and Subnormal*. Kegan Paul, Trübner and Co., London.

† C. W. Saleeby, M.D., *The Progress of Eugenics*, p. 181.

delism, as there are now so many treatises on the subject; for the benefit, however, of those of our readers who are not familiar with its principles, we may briefly state how it works out as regards mental defect in various cases:

1. If two normal parents, both of whose families are free from mental defect, have children, all those children will be normal; and, in addition, the children will be incapable of transmitting mental defect to their offspring.

2. If a normal person whose family is quite free marries either a mentally defective person or one who, though normal, is a carrier of the defect, then, although all the children will be normal, a certain number will be carriers of the taint. If the second parent is actually defective, all the children will carry it; but if the second parent merely carries it, without showing it, only half the children will carry the defect in their germ-cells.

3. If both parents are apparently normal, and yet both carry the taint, then one in every four of their children will be defective, and, in addition, two out of every three of the normal children will carry the defect, while one only will be free.

4. If both parents are defective, every one of the children will be defective.

In human families, which are limited in size, the numbers of those who are defective and those who are not seldom corresponds exactly with the table just given; the results of Mendelian inheritance can only be exact when the families are large, as happens in the vegetable kingdom. Yet many of Dr. Goddard's records approximate closely to the conditions of a Mendelian recessive.

Further confirmation from other workers is re-

quired before this theory can be accepted unconditionally; but the work of Dr. Goddard has been so thorough and extensive, and the explanation fits in so well with generally observed phenomena, that authority is attached to his conclusions.

The work done in the Galton Laboratory by Professor Karl Pearson and his collaborators, the writings of Whetham and many others, have established the importance of heredity in regard to mental defect. One argument of which much was made by the school who attributed everything to environment was the results of matings in the class of cases noted under heading 3 in the table above—that is, those instances when two normal parents have a certain proportion of defective children. At one time it was difficult to reconcile this with the hereditary principle, but if mental defect is a recessive Mendelian quality, this, so far from disproving the theory of heredity, helps to establish it. The most important evidence, however, of the powerful effect of heredity is afforded by the fourth condition described above; this is absolutely true. In the year 1909 the statement was first made that two mentally defective parents never have any but defective offspring; in the eleven years that have since elapsed this statement has never been contradicted.

It is necessary to point out that if mental defect is a Mendelian recessive character, segregation cannot stamp it out in a generation; the good effect of segregation will only gradually become apparent. The Mendelian theory explains the deep-rooted objection to cousin marriages, the danger being that if one parent carries mental defect in his germ-cells, the other will very likely do so too; the results of such a union are sometimes disastrous. The Mendelian

theory enables us also to understand how a parent may have only normal children after one marriage and defective children after a second marriage; the writer has seen a normal woman who had four normal children by her first husband, but after a second marriage four children of whom only one was normal, while one was defective and two died in infancy. The explanation is that the mother is a carrier of mental defect, and that the first husband was free, while the second is a carrier. The history of the Kallikak family, unearthed by the energy of Dr. Goddard, shows how a man by different matings may found two entirely different types of family.

We must not, however, pursue this interesting subject further than to say that it is not always, in the first instance, mental defect that is transmitted from one generation to another, but inadequate function of the endocrine glands, or feeble power of resistance to toxic agencies, one consequence of which is imperfect development of the central nervous system. We attach great importance to heredity, but we believe that the **environment** does exert an influence; we shall later on give specific examples where the environment was undoubtedly to blame. Speaking generally, "like breeds like," and the germ-cells are wonderfully protected from injurious influences. There are, however, many observations both in the vegetable and animal kingdoms which show that external influences may leave a mark. For instance, MacDougal,* experimenting with the evening primrose, showed that by injecting certain chemical substances into the immature ovaries, he got seeds which produced plants some of which departed widely from

* *Report of the Department of Botanical Research*, Fifth Year-Book, Carnegie Institute, Washington, 1907, p. 119.

type; in this way he was able to establish new varieties. Tower,* experimenting with a certain species of beetle, observed that if shortly before maturation of the germ-cells he subjected the beetles to intense environmental change (cold and humidity), he obtained offspring widely different from the parents, and the results appeared to be permanent, or at least heritable through further generations. The wing-cases of the normal beetle showed one pattern, those of the progeny of the cooled beetles showed another. When crossed, these altered forms bred true, nor did they lose their acquired characters in subsequent generations. Sumner† also proved that influences primarily affecting the body can secondarily affect the germ-cells. He found that similar broods of young mice brought up, one in a warm temperature (21° C.), and the other in a cold temperature (5° C.), differ considerably; the mean length of tail, feet, and ears of those brought up in the warm atmosphere is greater, and the young of these two groups, though reared in a common room, subsequently present the greater or lesser length of tail, foot, and ear acquired by the parent. Again, Carrière‡ inoculated guinea-pigs, both male and female, with the toxins and soluble products of tubercle bacilli, and found that the numbers of the litters were reduced and the number of the stillborn increased. Lustig§ showed similar results with chickens; there was diminished fertility, an increased number of monstrous births, and poor vitality of the surviving offspring.

* *An Investigation of Evolution in Chrysomelid Beetles of the Genus Leptinotana* (publication of the Carnegie Institute), Washington, 1906.

† *Archiv für Entwicklungsmechanik*, 30, 1910.

‡ *Archives de Médecine Expérimentale*, 12, 1900, p. 782.

§ *Centralblatt für Pathologie*, xv., 1904, p. 210.

Such observations as these justify the contention of Dr. Beard,* in his "Study of the Morphological Continuity of Germ-Cells as the Basis of Heredity and Variation," that food, climate, toxins, disease, natural phenomena of all kinds, can affect the corresponding characters of any germ-cell. Dr. Beard demonstrated that at the time at which the determiners separate out of the germ-cells, the reaction to the influence of the environment is a cause of variation and varieties; healthy influences promote variation of a good type, unfavourable ones tend towards a bad type. More than half a century ago records were published proving that poisons such as lead, mercury, alcohol, malaria, smallpox, or tubercle, in concentrated doses are causes of mental defect in the human family. Constantin Paul† stated that of 32 pregnancies in which the husband alone was exposed to lead in his work, there were 12 abortions; and of the 20 children born, 8 did not survive the first year, 4 died in the second, and 5 in the third, so that only 3 out of 32 lived beyond the third year. He also showed, as Roque, Sir Thomas Oliver, and others have done since, that epilepsy, idiocy, and imbecility frequently occur in the children of workers in lead. Lizé‡ supplied identical data regarding workers exposed to the fumes of mercury. We could quote many more facts such as these, which prove that variation is sometimes due to the environment and mode of life of the parent, and that variation may take the form of mental defect. We cannot leave this important

* J. Beard, "A Morphological Continuity of Germ-Cells as the Basis of Heredity and Variation," *Review of Neurology and Psychiatry*, vol. ii., 1904.

† Constantin Paul, *Archives Générales de Médecine*, 15 1860, p. 513.

‡ Lizé, *Union Médicale*, 1862, p. 106.

subject without referring to deficiency disease; Dr. McCarrison* and many others have drawn attention to the injurious effects of lack of vitamins in the food of civilised peoples, and in particular have shown that imperfect development of the nervous system and the endocrine glands may result. It is obvious, therefore, that in some cases a faulty diet will be at least an important accessory factor in determining mental defect. It is particularly important during pregnancy, and also for the baby who is not brought up on the breast.

When investigating at Stoke-on-Trent for the Royal Commission on the Care and Control of the Feeble-minded, Dr. Potts found several cases of abnormally backward children. In several instances these children, after being almost hopeless at school for many months, unexpectedly improved, and subsequently developed as well as their normal fellows. He attributed the condition partly to the mothers going out to work and leaving the children shut up for many hours, ill supplied with food, and with no one to talk to or play with. When such children come to school, they sometimes actually have to be taught to talk, and much else that a child should learn at home.

It is time now to discuss certain special factors which are sometimes accountable, in whole or in part, for mental defect. We must first point out, however, that it is not logical to attribute to a single specific cause, other than a direct hereditary tendency, the

* Robert McCarrison, M.D., "Deficiency Disease," *Brit. Med. Journal*, June 19, 1920, p. 822. See also "Discussion on the Present Position of Vitamins in Clinical Medicine in Section of Medicine at the Annual Meeting of the British Medical Association," *Brit. Med. Journal*, July 31, 1920, p. 147.

majority of cases met with, inasmuch as on investigation we often discover several contributory factors. So strong, indeed, is the tendency of Nature to revert to a healthy type, that a solitary infraction of physiological law is not often followed by the penalty of mental abnormality; if we only look back far enough, we shall generally find that such a culmination is reached by repeated transgressions. Not every drunken parent procreates an idiot; but when inherited nervous instability from this or other causes is intensified in the next generation by injudicious marriage or unfavourable environment, or a severe infectious illness shortly before conception or in early foetal life, instances of mental degeneracy are apt to occur.

We shall first consider **Inherited Syphilis**. This has been shown to act more frequently as a cause than was suggested by the earlier records. Sir Frederick Mott* studied for several years the effects of syphilis, acquired and congenital, on the nervous system, and arrived at the conclusion that it is an active agent in the production of congenital weakness and the degeneracy that accompanies it. He has demonstrated that "the measure of the effects of syphilis in the production of feeble-mindedness and epilepsy should not be estimated only by the cases in which there are visible and characteristic signs of syphilis on the body, for he has observed one member of a family with syphilitic notched teeth, another without any external sign, but with severe visceral and brain disease, while a third was an imbecile. He has also seen many other examples pointing to the same conclusion." He further states that "it may be thought

* F. W. Mott, *Minutes of Evidence taken before the Royal Commission on the Care and Control of the Feeble-minded*, vol. i., p. 453.

that because syphilis of the parents produces sterility, miscarriage, and abortion, its dangers are greatly minimised, but it cannot be doubted that if the poison is sufficiently strong to kill the embryo either before or shortly after birth, it must have a devitalising effect on the offspring that survives. Though hereditary neurosis or psychosis greatly increases the liability of the syphilitic poison to affect the nervous system, yet in numbers of the cases there was no pre-existing neuropathic family history—in fact, sometimes the syphilitic poison appeared to induce a neuropathic condition in the offspring.” Sir Frederick Mott has also shown that in some cases the blindness, deafness, mental deficiency or disease does not manifest itself till between eight and puberty.

Recently confirmatory evidence of the production of mental defect by inherited syphilis has been obtained by means of the Wassermann reaction. The results obtained, however, by different investigators differ so much, ranging from 1·5 per cent. to 60 per cent., that we cannot regard any of them as final. Well might Sir H. Bryan Donkin say that, “even assuming that the Wassermann process may be regarded as an absolute scientific test for the presence of syphilitic infection, it is clear that at present no positive conclusion as to the relations of mental defect to syphilis can be drawn from any accounts hitherto published.”* The discrepancies in the results obtained are partly due to the different antigens and degrees of dilution employed by different investigators. The age of the mentally defective person also affects the result, a larger number of positive reactions being obtained in early life. But even if the largest percentage yet obtained were

* Sir H. Bryan Donkin, M.D., *Lancet*, March 14, 1914.

proved to be correct, it would not shake our belief in the importance of a morbid heredity. It need prove nothing more than that the mentally defective, including, of course, slight cases, are singularly lacking in moral control and ability to take care of themselves. As a matter of fact, we know that the mentally defective form one of the greatest difficulties of those who are endeavouring to control and prevent venereal disease. Our verdict at the present time is that, as regards the causation of mental defect, syphilis is a sufficient factor in itself, and often has a deciding influence when a morbid heredity or other unfavourable factors exist.

A phthisical family history has often been blamed for mental defect; at the present time there is a difference of opinion as to how far tubercular disease acts in its causation, some authorities believing that it acts directly, while others regard it rather as a concomitant of degeneracy to be found along with amentia in families on the racial down-grade. Thus, Sir James Crichton-Browne, when giving evidence before the Royal Commission on the Care and Control of the Feeble-minded, said: "The true connection between tuberculosis and mental defect is to be found in the fact that they are both apt to fasten on a particular kind of human soil, weakly and little resistant to morbid agents."* While giving due weight to this idea, we are justified in concluding with Dr. Tredgold† that "in the absence of neuropathic inheritance, *consumption* and *alcoholism*, if very strongly marked,

* Sir James Crichton-Browne, M.D., *Report and Evidence of the Royal Commission on the Care and Control of the Feeble-minded*, 1908, vol. i., p. 329.

† A. F. Tredgold, *Report and Evidence of the Royal Commission on the Care and Control of Feeble-minded*, 1908 1.i., p. 396

may produce mental defect." We must remember, too, that according to Dr. McCarrison* chronic tuberculosis may lead to a degree of thyroid instability and impoverishment, which may result in the absence of the glandular stimulation essential for normal development of the central nervous system.

How far **parental intemperance** is accountable has given rise to much controversy. In a paper read before the Society for the Study of Inebriety (London) in October, 1908, Dr. Potts† made a careful review of the evidence as to how far alcoholism in a previous generation was accountable. He cited many authenticated cases where it appeared to be a direct cause, and, in particular, one quoted by the late Dr. Andriezen‡ of a man aged twenty-two, the second child of a family of six. This individual was begotten by his father while in a state of "alcoholic intoxication and exaltation. The child was neurotic, and at twenty-two had to be admitted to an asylum suffering from *dementia præcox*. The father, a well-to-do man, had several mistresses, and was the father of several other children. Though given to occasional alcoholic indulgence, he abstained from cohabiting when in a state of intoxication, and his other children, born of his sober moments, were not afflicted mentally or bodily like the patient referred to." Attention was directed in this paper to the important comparative statistics of Dr. Sullivan and others, and especially to the investigation of Dr. MacNicholl in New York. This inquiry, undertaken for the New York Academy

* McCarrison, *op. cit.*, p. 49.

† W. A. Potts, "The Relation of Alcohol to Feeble-mindedness," *British Journal of Inebriety*, January, 1909; also October, 1921.

‡ W. Lloyd Andriezen, "The Problem of Heredity, with Special Reference to the Pre-Embryonic Life," *Journal of Mental Science*, January, 1905.

of Medicine in 1901, recorded, among other observations, the results of tracing the family histories of 3,711 children through three generations, with great detail in regard to the taking of alcohol. Dividing them into two classes—viz., those free from hereditary alcoholic taint and those with that taint—it was found that of those free from hereditary alcoholic taint, 96 per cent. were proficient, 4 per cent. were dullards, and 18 per cent. suffered from some neurosis or organic disease. On the other hand, of those with hereditary alcoholic taint, 23 per cent. were proficient, 77 per cent. were dullards (and of these more than one-third were very deficient), and 76 per cent. suffered from some neurosis or organic disease.

The conclusions drawn at the end of the paper are that “the evidence is not clear that alcoholism by itself in the father will produce amentia, but it is quite plain that in combination with other bad factors it is a most unfavourable element, while maternal drinking, and drinking continued through more than one generation, are potent influences in mental degeneracy.”

In many cases in which alcohol appears at first sight to be the determining factor, the alcoholism is really a neurosis, and is simply evidence of a morbid heredity. Sometimes, however, excessive drinking is deliberate self-indulgence, the consequences of which may be very serious to the offspring. There is no gainsaying this fact, although Professor Karl Pearson* claims to have proved that alcoholic indulgence in the mass has no deteriorating influence on

* *A First Study of the Influence of Parental Alcoholism on the Physique and Ability of the Offspring*, by Ethel M. Elderton, with the assistance of Karl Pearson, F.R.S. Eugenic Laboratory Memoirs. London: Dulau and Co., 1910.

the physique and ability of the following generation; his statistics and conclusions have, however, been subjected to much criticism. The problem is beset with difficulties; to settle the question, we require in statistics very careful investigation as to whether there was any sign of morbid heredity before the drinking began, and, of course, a statement as to whether the drinking preceded the birth of the child. The only comparisons of real value are between total abstainers and drinkers; any arbitrary division between moderate and excessive drinkers begs the question. Dr. Shuttleworth and others have frequently pointed out that it is also necessary to go back more than one generation; it is no uncommon experience to find that the child of a heavy drinker shows no abnormality beyond a want of nervous tone and tendency to eccentricity when he grows up; his eccentricity may take the form of being a rabid temperance advocate, but when one of his children exhibits mental defect, that does not indicate that temperance is no benefit, but rather that the grandfather's indulgence has had far-reaching effects.

Dr. Shuttleworth's statistics, published in 1892, showed that a number of cases, almost 30 per cent., are attributed by the parents to **maternal ill-health, accident, or shock** during gestation. More recent investigations, such as those of Dr. Tredgold and Dr. Goddard, have shown that when a house-to-house visitation is made, and inquiries as regards all members of the family, there are often in these cases clear evidences of a morbid heredity. We have, however, already cited experiments in both the vegetable and animal kingdoms, and special histories of human beings, which show that it is only reasonable to suppose that these conditions may exact their toll. As regards

any severe fright or shock experienced by the mother, this would seem to have the greatest potentiality for harm when her supply of adrenalin is exhausted; this condition is most likely to be present during the early weeks of pregnancy before the adrenal function of the foetus is established, or after a severe infectious illness which has affected the adrenal glands. Dr. Mercier and others, when giving evidence before the Royal Commission on the Care and Control of the Feeble-minded, gave it as their opinion that bad nutrition of the mother during pregnancy, or poisoning by such agents as alcohol and morphia, were sometimes to blame. It is significant that Dr. McCarrison* found the effects of toxins on the foetus most marked when the mother was badly nourished, and also that he found the most severe type of cretinism—viz., nervous cretinism—only among the very poor. Sir James Crichton-Browne referred to an idiot he had seen, whose mother during pregnancy had Asiatic cholera. Her children born both before and after this were healthy. Dr. Potts† has recorded a single case of mental defect in the middle of a large family, probably due to the mother sustaining a complicated fracture of the arm during pregnancy. He ascertained, however, that the mother was a confirmed alcoholic, and expressed the opinion that such unfortunate developments only occurred when some other factor was also present. Such was the case in an instance he recorded of feeble-mindedness ascribed by the parents to the father having a severe attack of smallpox some twelve months before the child was born. There is reason to think that severe attacks

* McCarrison, *op. cit.*

† "Causation of Mental Defect in Children," *Brit. Med. Journal*, October 14, 1905.

of malaria and other infectious fevers shortly before conception may have serious effects on the mental capacity of the child. There is no doubt that toxæmia during pregnancy may be responsible for mental defect. This has been established by the work of Drs. Orr and Rows, and also by the facts we gave in the last chapter when discussing the pathological results of glandular inefficiency. Toxins produce effects inversely proportional to the mother's powers of destroying them. Generally these powers are so perfect that there is little or no harm to the foetus. The greatest danger occurs very early in pregnancy, and when there is a combination of unfavourable circumstances, or there is severe, long-continued, or repeated infection. The importance of the endocrine glands in connection with such infections must not be forgotten. Although some infections are more dangerous than others, none can be disregarded, and we would direct attention to the possibility of harm to the mother's thyroid, and indirectly to the foetus from pyorrhœa alveolaris, and from infection of the tonsils and nasopharynx of the mother. If the thyroid is the most important gland, then the mother's diet during pregnancy must make a difference. A diet consisting largely of meat with little or no vegetable food would be particularly injurious. The harmful effect of the deprivation of oxygen on the mother's thyroid explains the danger in pregnancy from bad ventilation. We believe these ideas about the dangers of toxæmia in pregnancy to be of real importance. The postnatal treatment of mental defect has always been disappointing, because the trouble is dealt with too late. It does not follow that treatment during pregnancy will always fail. For the prevention of mental defect we must look not only to the segregation of the unfit,

but more and more to the antenatal clinic. There must be a time when we might still avert mental defect in the child by glandular medication and hygienic treatment of the mother. The wise supervision of pregnancy, and the administration of thyroid or adrenalin when indicated, cannot fail to help.

While dealing with this aspect of the subject, we may refer to the possible consequences of artificial restriction of families, and also of attempts to procure abortion. Sir James Crichton-Browne, in his evidence to the Royal Commission, said: "One cause productive of idiocy or feeble-mindedness operating during utero-gestation, and deserving of careful attention at this time, is attempts to procure abortion. When that is instrumentally attempted without success, injury may be done to the head of the fœtus, and when drugs are used these may disastrously interfere with its nutrition and growth. . . . These attempts at abortion, and also the practices employed to prevent pregnancy, with a view to the restriction of the family, are said by all the physicians who gave evidence before the New South Wales Commission to have a detrimental effect on the nervous system of the woman, producing hysteria, neurasthenia, and mental disturbance, and thus acting unfavourably in the health of any children who may be subsequently born."*

Mentally feeble children are often the offspring of highly neurotic parents, sometimes of highly cultured persons exceptionally gifted in a particular direction. It would seem, indeed, in some cases that the parents have themselves expended so much of their nervous energy that they have little left to transmit to their offspring; familiar instances will occur to

* *Report of the Royal Commission on the Feeble-minded*, 1908, vol. i., p. 330.

everyone of distinguished men and women afflicted with children whose mental endowments are below the average. Bearing in mind the aphorism that

“ Great wits are sure to madness near allied,”

and that a neurotic temperament is sometimes associated with intellectual brilliancy, this need not surprise us, though parents usually consider it as extraordinary. Mental feebleness is in some cases merely a consequence of feeble health; with improved physical conditions the mental impairment may gradually disappear.

Among CAUSES ACTING AT BIRTH, that to which most importance attaches is **prolonged parturition**. It has been alleged by Drs. Winkler, Bollaen, and others, that the use of **forceps** is accountable for a considerable amount of cerebral injury and consequent mental impairment. So far from this being the case, it appears from Shuttleworth's and Fletcher Beach's statistics that **protracted pressure** without instrumental interference is a more potent cause both of mental and nervous defect, the latter factor figuring more than four times as often as the former (*i.e.*, 14·24 per cent., as compared with 3·31) in their combined etiological table, whilst in addition the occurrence of *asphyxia neonatorum* is noted in 12·96 per cent. of Dr. Beach's cases. The late Dr. Langdon-Down,* indeed, estimated the frequency of the latter condition at 20 per cent. amongst imbecile children generally, and at 40 per cent. amongst those who were first-born. It is unquestionable that the *asphyxia neonatorum* so often due to protracted unassisted labours is in some cases followed by paralysis, and enfeeblement more or less severe of the intellec-

* “ The Obstetric Aspects of Idiocy,” *Trans. Obstet. Society*, 1876.

tual powers. It probably accounts for some of the milder types of mental feebleness, although sometimes the asphyxia is the first indication of imperfect development of the central nervous system. In many cases of congenital spastic paralysis there is no justification for ascribing the condition to injury at birth, because the child has been small and the labour correspondingly easy and rapid. Even when labour has been long that has often been entirely due to primary uterine inertia, the cause of which has been the lack of those sensitisers from the endocrine glands which are also responsible for normal mental development.

Premature Birth was noticed as a factor in 3·52 per cent. of the cases recorded by Dr. Shuttleworth. Although insufficient in itself to determine mental defect, this accident may just turn the scale when there are other predisposing influences. Here, again, the possibility of toxæmia must not be overlooked.

CAUSES WHICH COME INTO PLAY AFTER BIRTH are commonly heard of, as parents readily put these forward rather than the prænatal cause of a congenital defect, which they are loth to recognise. Consequently such assigned causes as a fall, a fit, or a fright, must be received with caution, and it must be borne in mind that such may be at most the exciting cause, sometimes merely the consequence or coincidence, of a nervous catastrophe to which the child is congenitally predisposed. In the last chapter we referred to the pathology of developmental cases, and under this head many of those produced by causes acting after birth would properly fall. This remark applies especially to the cause most commonly assigned of all others for mental deficiency in children—viz., **Convulsions during teething** (eclampsia)—which figured in the statistics of the

Royal Albert Asylum to the extent of 32·58 per cent. (nearly one-third of the admissions). There is no doubt that infantile convulsions frequently occur without producing any subsequent mental impairment; when it follows it is safe to assume, except when inflammatory lesions have been set up, that there has been some inherited brain abnormality. **Epilepsy** is also a commonly assigned cause. According to Dr. Tredgold,* a special examination with regard to convulsions in over 500 mentally defective patients showed that in cases presenting no paralysis or other indication of gross cerebral lesions, and in whom, therefore, the attacks were idiopathic epilepsy, convulsions occurred in 37 per cent.; whilst in patients presenting signs of gross lesions they occurred in 70 per cent. There are cases in which a previously bright child, afflicted with epilepsy, falls into a state of mental hebetude; but in the majority of cases both the epilepsy and the mental abnormality are consequences of inherited nervous instability. Though slight injuries are often set forth as causes when quite inadequate, **Traumatism** (chiefly in the form of injury to the head) is a *bonâ-fidē* cause in a number of cases—*e.g.*, in 8·25 per cent. of the admissions to the Royal Albert Asylum. **Fright** or **shock** (mental) showed as a factor in about 3 per cent. of the cases; and in such instances as that of a child cruelly locked up in a dark cupboard for several hours, or scared and bitten by a fierce dog, these shocks may be contributing causes. In some cases of epilepsy where there is a definite history of a fall it is the psychic shock, rather than any physical injury which is to blame. In many cases, however, where the history at first suggests that it is a case of psychic epilepsy, it will be found on

* *Mental Deficiency*, 1920, p. 225.

full investigation that the occurrence of the seizure recorded after the accident is merely a coincidence, there having been previous ones which had not been recognised. **Severe febrile illnesses**, such as whooping-cough, scarlatina, measles, and smallpox, were assigned as causes in nearly 10 per cent. of the admissions to the Royal Albert Asylum, and where meningitis had supervened, probably with truth. It is remarkable that the statistics, both at Lancaster and Darenth, gathered at a time when the worst features of our elementary school system were in vogue, give but little prominence to "over-pressure" as a factor, being noted in only 0·16 per cent. of the 2,380 cases.

DIAGNOSIS.—The practical question often arises: How shall we recognise mental abnormality in a young infant? And the further inquiry may follow—is the mental abnormality *primary* or *secondary*? Mothers are proverbially blind to imperfections in their offspring, and in many cases it falls to the medical attendant to point out the painful fact that the poor baby is not "all there." It behoves him, therefore, to be well posted in the diagnostic marks of infantile feeble-mindedness.

As regards the earliest age at which mental deficiency can be recognised, we may say that in well-marked cases a diagnosis is possible during the early months of life, sometimes even at birth. If there is great difficulty in getting the baby to suck, and careful examination shows no physical condition in either mother or child to account for this, mental weakness may be suspected. This would be confirmed by the child's configuration conforming to one of the definite types described in the last chapter, such as the Microcephalic or Mongolian. Discrimination must be exercised in deciding that there is an approxi-

mation to the type as a whole, and not merely an exhibition of one of its more prominent features, such as an epicanthic fold, which is not very uncommon in normal individuals. On the other hand, we cannot expect to find the transverse furrows on the tongue in an infant Mongolian, for they develop later. Cretins have been diagnosed at the third month, but when no definite type is recognised, judgment must be



FIG. 2.—IMPROVED MICROCEPHALIC IMBECILE.
(Earlswood.)

postponed and the progress of development carefully watched. In the slighter cases sometimes no definite opinion can be given till seven years of age, or even later.

The DIAGNOSTIC marks of infantile mental defect may be grouped under four heads—viz.:

1. **Cranial Abnormalities.**
2. **Formative and Developmental Defects.**
3. **Abnormality of Nervous Action.**
4. **Defects in Nutrition.**

PLATE XIII.

Fig. 1.

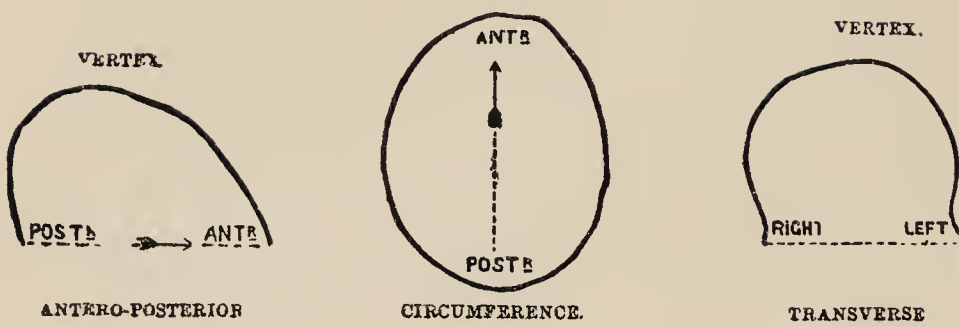


Fig. 2.

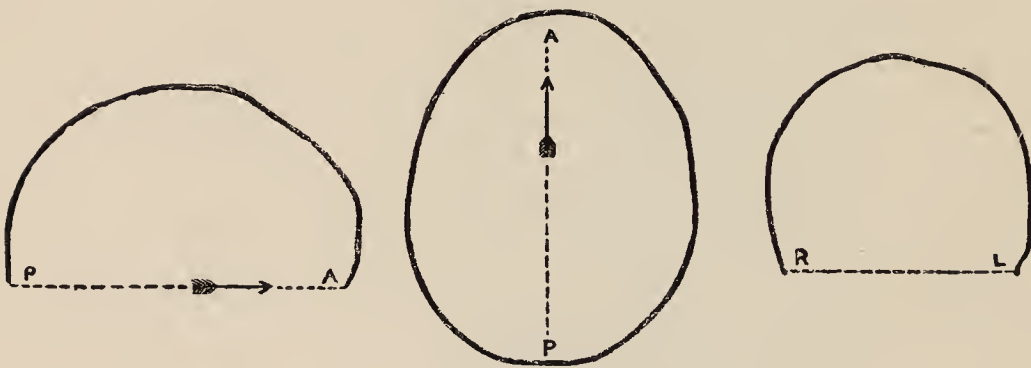
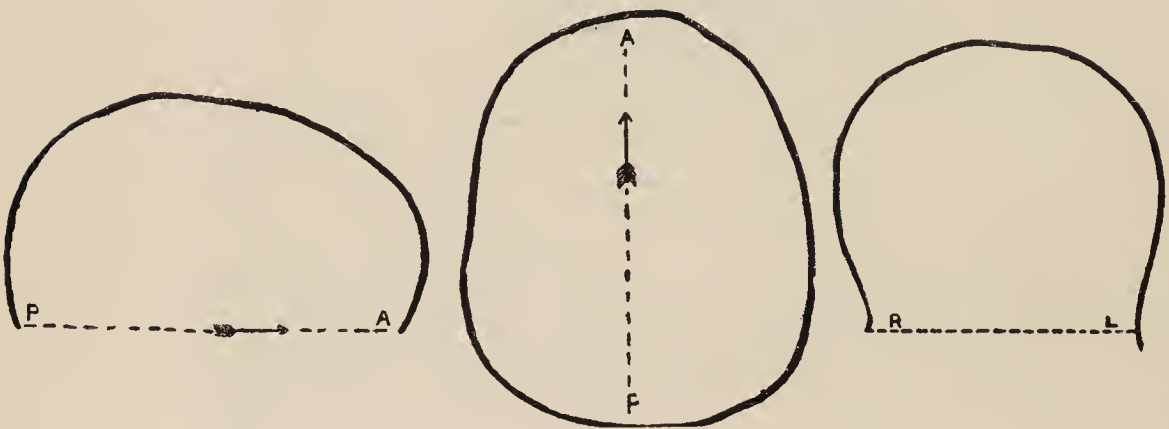


Fig. 3.



COMPARATIVE CRANIAL CONTOURS.

Fig. 1.—Microcephalic Contours. Fig. 2.—“Mongolian” Contours.
 Fig. 3.—Hydrocephalic Contours.

1. **Cranial Abnormalities.**—The most significant is, of course, **Microcephalus**. As previously stated, not only deficient size, but also a characteristic form of head, is indicative of this abnormality (see p. 59, *ante*). Taking the average head circumference at nine months as 17 inches, and at twelve months as 18 inches, any notable deficiency in head measurement in a child otherwise of normal size may be taken to suggest microcephalus. The typical form, which confirms the diagnosis, shows a narrow, rapidly receding forehead, a flat occiput, and a pointed vertex, thus exhibiting two marked angles, one at the centre of the face and the other at the top of the head. We have seen typical microcephalic adults whose head circumference exceeded 20 inches, and Dr. Tredgold* refers to one whose measurement was 21 inches. The palate is high and narrow; in form, like a V or a Gothic arch. Such abnormality of palate, though more frequent in mentally defective children, is, however, by no means a definite indication in these days of teats and feeding-bottles.

Intra-uterine **Hydrocephalus** generally gives rise to a difficult labour, and the cranial abnormality in the child is not likely to escape notice. The head is globular, and the greatest enlargement is in the circumference at the level of the temples, giving the typical top-heavy appearance; there is some bulging at the fontanelles and along the sutures. Though the diagnosis is usually self-evident, there are cases without marked enlargement of the head; in such cases the diagnosis is based on periodic attacks of headache and vomiting associated with physical signs dependent on an increase of pressure.

Hypertrophic cases, although less striking, attract

* A. F. Tredgold, *Mental Deficiency*, 1920, p. 211.

attention in much the same way. A diagnosis from Hydrocephalus can be made by noticing that the skull is square rather than round, and that the increase in size is most marked just above the superciliary ridges instead of at the temples, while there is no bulging of the fontanelles or sutures. The enlargement is more even and general than in rickets, which is the commonest cause of a large head; in doubtful cases careful examination of other parts of the body should establish a diagnosis, and prevent any confusion with cretinism, achondroplasia, cleido-cranial dysostosis, or congenital syphilis. Bossy enlargements of the skull are characteristic of the two latter, but are also found in rickets, which may be associated with hypertrophic cases. In hypertrophy the circumference is less than in hydrocephaly, there being no record of one over 25 inches. For purposes of comparison, it is useful to remember that the average circumference of the normal head at five years of age is 20 to $20\frac{1}{2}$ inches, and at ten 21 inches, while in the female adult it is $21\frac{3}{4}$ inches, and in the male adult 22 inches.

Oxycephaly, with its great increase in the vertical measurement of the cranium, and the shallow furrows above the temples, can scarcely be overlooked, nor can **Scaphocephaly**. The configuration of the head in both these conditions has been described in the last chapter (see pp. 63, 73, and 74, also Plates VII. and XI., and Fig. 3, p. 111).

The so-called "**Mongol**" type leaves its impress not only on the physiognomy, but on the form of the head, as already described; there should be no difficulty in recognising it even in early life. The brachycephalic skull, and the "almond-shaped," obliquely set palpebral fissures, are quite characteristic; the

other physical features will be described later, and also the differential diagnosis from **Cretinism**, to which it often bears a superficial resemblance.

Marked asymmetry of the skull is met with in HEMIPLEGIC cases; other distortions sometimes occur, especially after a difficult labour. Occasionally injuries from forceps leave a permanent mark, but in our experience these are not more common with defective than with normal children. Asymmetry must not be taken as of itself a sign of mental defect;

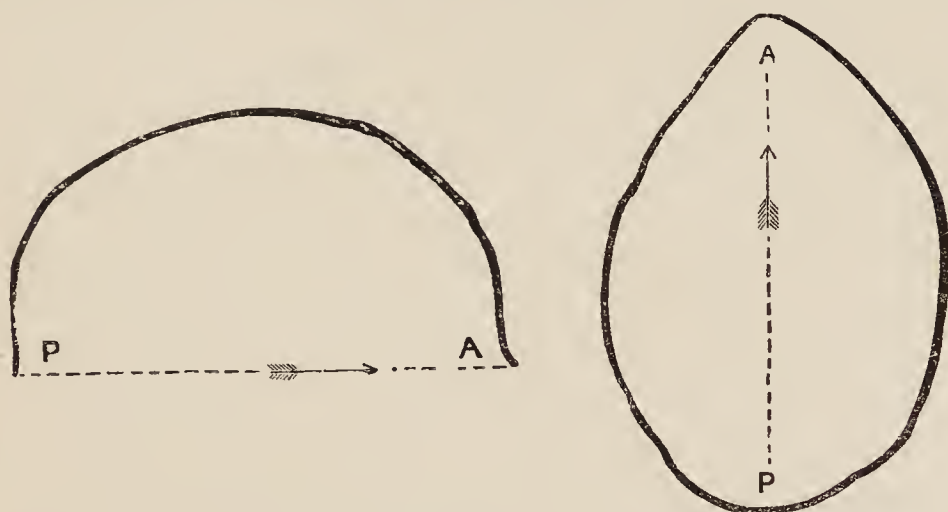


FIG. 3.—ANTERO-POSTERIOR AND CIRCUMFERENTIAL CONTOURS OF SCAPHOCEPHALIC CRANIUM.

indeed, in adult life it is said to be a mark of culture. Prolonged (dolichocephalic) crania with a median longitudinal ridge over the sagittal suture are met with both in normal and abnormal children; consequently the scaphocephalic form cannot be called diagnostic. But the persistence of a medio-frontal suture, or the existence of a medio-frontal ridge towards which a narrow forehead tapers, may be accepted as signs of imperfect development of the frontal lobes.

In cases where there is any possibility of an injury

at birth or later, the X rays may give much assistance in the diagnosis by the proof of fissures, defects, thickenings, and foreign bodies, even if the physical examination fails to disclose such changes. For instance, in a case seen recently by Dr. Shuttleworth, a skiagram showed thinning of the bone near vertex, with a shadow below, probably due to an organised clot.* There had been a definite injury at birth.

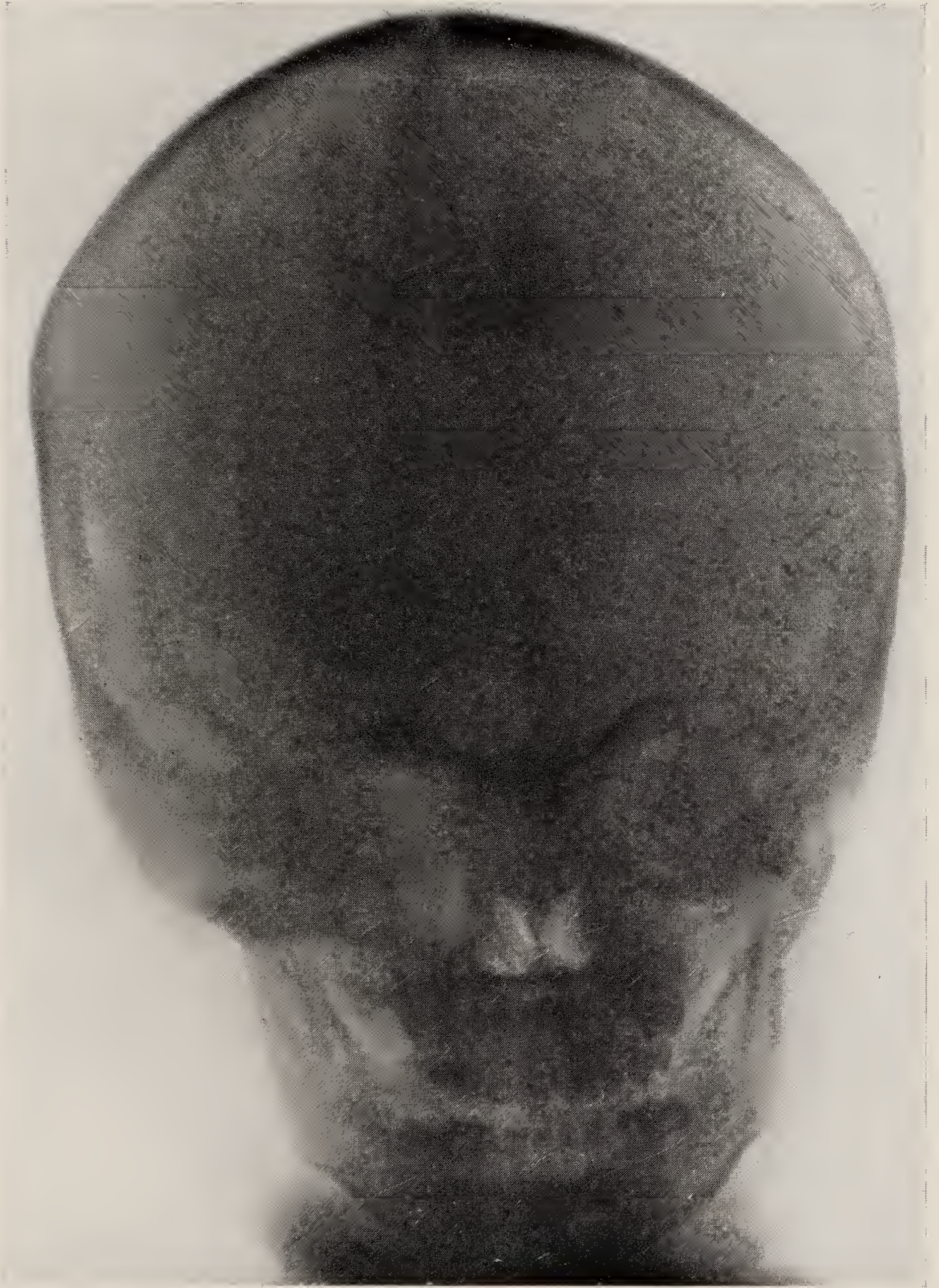
2. **Formative and Developmental Defects.**—As signs of imperfection of physical development are often associated with mental defect, we should look for such abnormalities of formation as hare-lip; delayed or irregular dentition; cleft, high, and misshapen palates; small, rudimentary, outstanding, or misshapen auricles, sometimes set too far back, or at different levels on the two sides; supernumerary auricles represented by tags of projecting skin; epicanthic folds extending across the caruncle; opacity of ocular media; coloboma iridis; nose unusually indented at bridge or depressed; nostrils looking forward, or shaved off at the sides; hairy growths or moles on forehead or face; nævi; rough and scaly condition of skin; imperfections of nails; general blueness of face, lips, etc., from cardiac malformation; blueness and coldness of hands and feet. None of these stigmata of physical failure necessarily imply mental deficiency, but their occurrence will lead, especially if several be observed, to suspicion on the subject.†

3. **Abnormality of Nervous Action.**—Spontaneous muscular activity, though with movements minute in character (the “microkinesis” of Dr. F. Warner), incessant during waking hours, is the characteristic of healthy infant life. If these movements be absent

* See Plates XIV. and XV.

† See Plate I., facing p. 14.

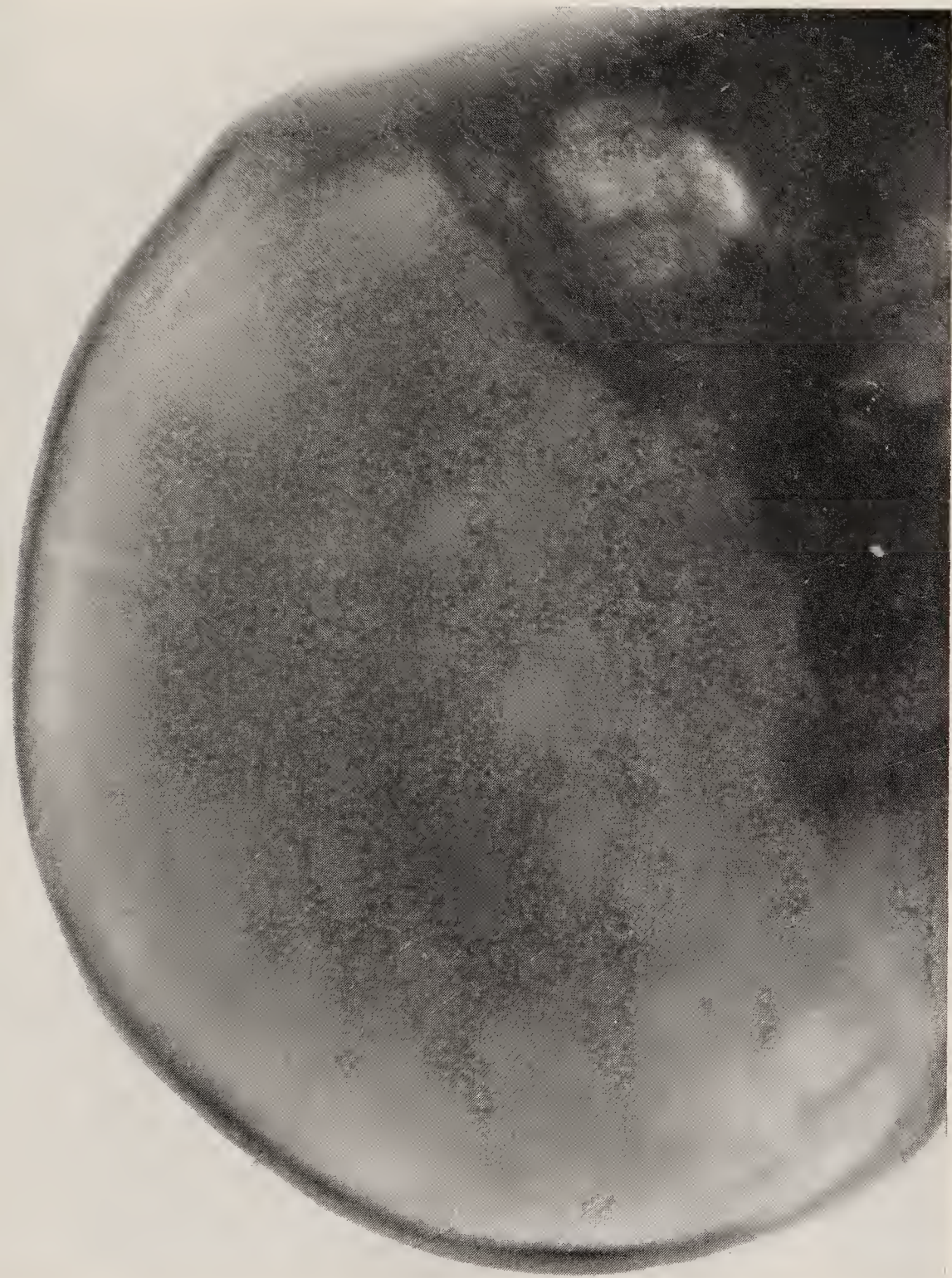
PLATE XIV.



REDUCED FROM SKIAGRAM (BY DR. N. S. FINZI) OF CHILD THREE YEARS
OLD SUFFERING FROM EPILEPSY. ANTERIOR VIEW OF HEAD.

(Arrow indicates irregularity of cranial contour.)

To face page 112.



REDUCED FROM SKIAGRAM (BY DR. N. S. FINZI) OF CHILD THREE YEARS OLD
SUFFERING FROM EPILEPSY. RIGHT LATERAL VIEW.

(Arrow indicates irregularity of cranial contour.)

To follow Plate XII.

or excessive, we may reasonably suspect something wrong with the nervous system, and predicate mental irregularities. In the former case we shall find a dull, vacant expression, sometimes associated with imperfect reflexes, so that even the function of sucking is not properly accomplished. In the latter there is over-mobility, perhaps nystagmus, and twitching movements of the muscles of the face. A general tremor is also sometimes met with. As indications of mental deficiency, we must, of course, be guided by the extent of the departure from the normal in one direction or the other. As the age of the child increases, we must carefully watch the evolution of its senses, and note deficiencies of touch, sight, hearing, etc. At a later stage, the absence of attempts at speech, when the hearing is not affected, will be of value as a diagnostic sign; so also will lack of muscular co-ordination and consequent inability to walk, independent of paralytic affection.

4. **Defects in Nutrition.**—The emaciated, wizened features of the slum baby, so often seen in the children's wards of East End hospitals, furnish an extreme example of these defects. These may arise from injudicious feeding, especially from lack of vitamins; but there is a congenital state of malnutrition, evidenced, for instance, in cases of inherited syphilis. Persistent defects of nutrition, in spite of good feeding, are symptomatic of defect of original constitution, and are not infrequently associated with mental deficiency. This fact was remarked by Dr. Warner in his inspection of Poor Law Schools, where, notwithstanding good feeding, the tendency to low nutrition was in greater ratio than with ordinary school children.

To sum up, we shall find aid in diagnosing the PRIMARY character of mental deficiency by noting

abnormalities in the form and shape of the head, and the condition of the cranial sutures; by looking for the physical stigmata, if not of degeneration, at any rate of arrested development; and by seeing signs of abnormal nervous action and a constitutional tendency to imperfect nutrition. The occurrence of *asphyxia neonatorum*, the absence of a healthy cry, defect of reflex action and of grasping power, imperfect reaction to light and sound, absence or excess of spontaneous movement, and (as time goes on) inability to notice objects or to fix the attention, with tardiness of attempts at speech and at walking, are some of the symptoms marking the child as different from other children. As a definite guide we may state the time at which certain functions develop in a normal child; there are, however, great variations even in healthy children, so that considerable latitude must be allowed. Touch, taste, and probably smell are more or less developed at birth, at which time the infant should present a developed voice, and cry vigorously. The power of hearing is soon established; the eyes are sensitive to light from the first, but there is a lack of power to interpret the images received. By the fifth or sixth week objects are followed by the eye, and at the same time the child, whose features have previously been more or less passive, begins to smile. From two to three months is the time at which it can sustain its head without assistance, but this is done in a vacillating way till the fourth or fifth month. By the sixth month it can sit up with ease, and accomplish many movements with its arms, hands, and fingers, and enjoy playthings. Between the seventh and ninth months it may be put on the floor alone, and can amuse itself. When from ten to twelve months old,

it begins to crawl, and is generally able to walk at some time between the twelfth and sixteenth months. When twelve months old, the child begins to enunciate single words, and at eighteen months or two years learns to form short sentences.

In SECONDARY AMENTIA there are no signs of congenital defect, while there is a history of normal development till the occurrence of a definite injury or disease, followed by deterioration. Caution, however, is necessary in accepting the statements of parents on these matters, and it must be remembered that a certain number of cases, not obviously suffering from congenital defect, are born with brains so unstable as to be unable to withstand the stress of life; these may break down at a crisis of development, or after a slight injury which would leave a normal child unharmed. Dr. Woodrow states as his experience that "it is a remarkable fact that no child ever becomes feeble-minded after the age of four or five, the age at which the brain reaches almost its full weight."* Hence the importance of proper nutrition and care during the early years of life.

Tests of Mental Defect.—Having explained the diagnosis as far as it can be based on anatomical and physical grounds, or abnormality of nervous action, it will be useful to indicate how the mental capacity may be tested, both in older children and adults. But first it must be understood that it is the mind that requires investigation, and not merely the intellect, which is one province only of the mind. The highest mental faculty is not cleverness or capacity for accomplishing school work, but "wisdom, which enables a man to regulate the more important

* *Brightness and Dulness in Children*, by Herbert Woodrow, Ph. D., J. B. Lippincott Company, 1919, p. 69.

modes of conduct in the more important affairs of life, so as to achieve success in his career.”* Is the person under review capable of filling a place in ordinary life without danger to himself or others? That is the most important question.

In the first place, the personal history and information as to habits and conduct must be obtained from parents or others in charge of the patient, knowledge as to which is, indeed, essential before certificates can be made out under the Mental Deficiency Act.† No better illustrations of the kind of facts required can be given than by quoting extracts from the “Facts communicated by Others” in the medical certificates of cases already dealt with under the Act. Among others we have the following statements: “Has always been dull and backward,” “Has never been like other children,” “Has never grown up,” “Can do no useful work,” “Never works except under supervision,” “Loses his way,” “Cannot take care of himself,” “Cannot go any errands,” “Cannot be trusted with money,” “Has never been able to earn anything,” “Cannot keep a situation,” “Abnormally passionate,” “Extraordinarily obstinate,” “Open to any suggestion,” “Will never wash himself,” “Cannot dress herself properly,” “Has no memory.”

As regards the facts observed, there is no examination and no set of tests which provide an absolute standard; the opinion of an expert after a few minutes’ observation and conversation is of greater value than the records of a series of tests conducted by a tyro who judges by results only. The most important point

* *Crime and Criminals*, by Charles Mercier, University of London Press, Limited, 1918, p. 238.

† Form of certificate will be found in Appendix E, p. 292.

may be, not whether the solution is correct, but how the problem is approached and dealt with; the degree of satisfaction shown or expressed with the result is a guide. There may be grave mental defect as exhibited by want of judgment, weak power of control, and abnormal impulses without noticeable lack of intelligence. In exceptional cases nothing but prolonged observation of conduct in ordinary life can decide the matter.

Sometimes numerous scars of cuts and burns will be seen indicating the defective's inability to take care of himself. In others the slovenly dress and torn clothes give a clue. The manner and bearing are of the utmost importance. How does he enter the room? How does he meet a stranger? Gait and carriage must be carefully observed. How does he conduct himself during the examination? Does he take an intelligent interest, or is he quite indifferent? What is the capacity for attention and concentration? If he cannot read or write, or tell the time, or perform simple calculations, in spite of teaching, the diagnosis is usually clear. If he has such elementary knowledge, he may still fail in very simple tests. Of course, in all of these allowance must be made for age, and also for any lack of education. Here, again, we can give our readers no more practical assistance than by quoting from actual certificates for detention. "Does not know the date," "Does not know when Christmas Day is," "Does not know when his birthday is," "Does not know how long he has been in this institution," "Told me that a penny was a half-penny, and a shilling a threepenny bit," "Says a horse has two legs," "Does not know which is his right hand," "Told me that a horse has feathers on its head," "Does not know how many brothers he

has," "Cannot count beyond twenty," "Cannot perform simple calculations," "Cannot say what he had for dinner," "Cannot describe how he came here," "Does not see any necessity for earning his own living," "Says the word *insensible* means 'Are you sensible?'" "Says the *opposite of ugly* is 'Are you ugly?'"

Special tests, sometimes useful, are the following:

1. Turn sleeves of patient's coat inside out, and tell him to put it on.
2. Give him a knotted cord to untie.
3. Give him a match to strike.
4. Crossing-out test (letters or groups of different numbers of dots).
5. The interpretation of pictures.

Although a few tests of this kind, in addition to the history and physical examination, are often sufficient for a diagnosis, it is better always to carry out some detailed scheme of examination of the mind. This puts the case on a more definite footing, gives important indications as to the supervision, education, and training required; helps in the prognosis, and also, assuming the scheme employed to be one in general use, enables a definite statement to be sent to any School or Training Institution with regard to the intellectual capacity.

From the time of Galton onwards numerous attempts have been made to devise a system of measuring the intelligence, but nothing really satisfactory was available before the epoch-making work of Binet and Simon, who produced their first series of graded tests in 1908, and revised them in 1911. These tests enable a rapid psychological analysis to be made of certain capacities, so that the degree of intelligence may be estimated. Their great value

depends upon the fact that they are arranged in a series according to age, and also that each response is either a pass or a failure. For each year of life from 3 to 10, and, again, for 12, 14, and 16, there are four or five questions or tasks. These are so arranged that an average child can just pass those for his own age, but not those for later years. A large number of normal children were examined to decide what tests were suitable, the examination always being so devised as to measure the innate ability, rather than the results of teaching and training; hence, in the case of those with limited mental capacity, a standard is reached during school life beyond which there is no further advance. In actual practice it may be found that a child can accomplish some of the tests for years above that in which he has passed all. In this case his mental age is recorded as that for which he passes all the tests with the addition of so many months, according to the number of tests for the particular year, for each one he can pass in those for higher years. These additions, as a rule, do not amount to much; the greatest irregularity occurs in the case of epileptics and moral imbeciles, and is, to some extent, pathognomonic of those conditions. For instance, a mentally defective epileptic boy of 18, who could not read, passed all the tests (Terman Revision) for year six, four for year seven, five for year eight, three for year nine, three for year ten, and almost succeeded in one for year twelve. His mental age was, therefore, $8\frac{1}{2}$ years.

An enormous amount of work has been done on these lines, particularly in America. It was soon found that the tests were not perfect, and required modifications, especially for English children. The first revision—one that has been, and still is ex-

tensively used—was put forward by Dr. H. H. Goddard,* who restandardised the tests. The Yerkes-Bridges “Point Scale”† altered the scoring, and added new questions. Then came Professor Terman’s Stanford Revision. The most recent criticism was made in *The Training School Bulletin* for March and April, 1920, by S. D. Porteous, who criticises the Terman Revision, and incidentally gives a list of the eight tests in which defectives most frequently fail. He uses these eight tests as a means of confirmatory diagnosis in doubtful cases, on the grounds that if the subject shows the characteristic failures of defectives, the presumption of feeble-mindedness is thereby increased. At the same time he makes this a rough-and-ready test for mental age by allowing one year for each success, beginning to count from six years. Thus one success makes it six years, two successes seven years, and so on. In his interesting paper Dr. Porteous points out that the percentile method, which he incidentally explains, provides a remedy for erroneous standardisation. The other revisions that have appeared do not require any special notice. At the present time, we consider “The Stanford Revision of the Binet-Simon Intelligence Scale” by Professor Terman is the best. We cannot, however, reproduce this revised series, so have summarised the Binet-Simon tests in an Appendix. It must be pointed out that it is not sufficient merely to know the tests; the examiner must know

* H. H. Goddard, *Two Thousand Normal Children measured by the Binet Measuring Scale of Intelligence*, Pedagogical Seminary, June, 1911.

† Robert M. Yerkes, James W. Bridges, and Rose S. Hardwick, *A Point Scale for Measuring Mental Ability*, Warwick and York, Baltimore, 1915.

how to present them to the defective. A complete guide for this purpose is given by Professor Terman in his book,* which is well worthy of study. There is a convention that the retardation which determines a child as a defective is two years when the child is under nine, and three years when he is past his ninth birthday.

In connection with the mental age the term "Intelligence Quotient" (often designated IQ) is frequently used; this is the ratio of mental age to chronological age. Thus a child of ten with a mental age of ten is normal, and has an intelligence quotient of 1.0; but if his mental age is only seven, his intelligence quotient is 0.7. Intelligence quotients appear to remain fairly constant, and therefore give a valuable guide. So, if a four-year-old child has a mental age of three, his intelligence quotient is 0.75, and at sixteen he will probably have a mental age of twelve. "The age at which intelligence reaches its maximum is the age at which there is no further growth of such abilities as those of memorising, of concentrating attention, learning or reasoning about new topics. It is certain that for the average individual, this age is below twenty. He may go on acquiring knowledge and wisdom all his life, but he works always with the same mental tools."† There is considerable variation, but probably on the average the maximum intelligence is reached at the age of sixteen. It is unnecessary to say more here about the Binet-Simon tests, especially as Chapter VII. deals with the examination of mentally defective children under the regulations of the Board of Education.

* *The Measurement of Intelligence*, by Lewis M. Terman. London: George G. Harrap and Company, Limited. 1919.

† Woodrow, *op. cit.*, p. 51.

We have already stated that we do not consider any set of tests yet put forward as completely satisfactory in determining whether a particular individual is defective or not. The judgment of the examiner is called for after all, especially in regard to the influence of environment and physical conditions. The subject must not be dismissed, however, without describing some of the special tests devised in recent years.

In our own country valuable pioneer work has been done by Dr. Abelson,* who, realising that even Binet and Simon did not know what their tests measured or signified, and that there was nothing to show the relative value of a test, set himself to work out a set of tests, each of which he correlated with others, and modified or rejected accordingly. He made a separate investigation of the tests suitable for "backward" and feeble-minded children. The tests specially investigated, some of which were original, were: (1) Tapping; (2) crossing out rings; (3) crossing out sets of dots; (4) memory for sentences; (5) memory for names; (6) memory for commissions; (7) discrimination of length; (8) interpretation of pictures; (9) geometrical figures; (10) memory for form; (11) opposite meanings; (12) observation; (13) grip as measured by dynamometer; (14) recognition of absurdities and logical fallacies. In 4, 5, and 6, a series was arranged, each of which was a little longer and more difficult than the preceding. Special attention must be drawn to the geometrical figures. In these there are 2, 3, 4, or 5 figures (square, triangle, and circle), portions of which overlap. The child is then given a soft painting brush to mark a

* "Tests for Mental Deficiency in Childhood," by A. R. Abelson, B.Sc., D.-ès-L., *The Child*, October, 1912.

point which is inside one or more of the figures, but not inside certain others. Some of the tests involve two factors—speed and accuracy. The difficulty which might, therefore, arise is met by insisting on accuracy, and then making it a test of speed only, urging, if necessary, just at the breaking-point.

Mr. Cyril Burt,* Psychologist to the London Education Committee, has also carried out important investigations, chiefly with normal children.

A useful test is the Heilbronner Test. This consists of a number of little cards in sets of three to seven, usually six. The first of each set shows the basic plan in the construction of some well-known object, such as a bicycle, a telephone, or a windmill; each succeeding card in a series shows a further stage in the setting up of the object, which, of course, it more closely resembles. The series is so arranged that any intelligent person can recognise each object if not on the first card of the series, at any rate well before the final stage is reached. Cards for this test, like many other tests to be presently described, can be obtained from the C. H. Stoelting Company, 113, North Green Street, Chicago, U.S.A.

Recently the recognition of the importance of individual examination and treatment in criminal work, as well as in educational, has done much to stimulate research. A leading investigator in this department is Dr. William Healy, who was formerly Medical Examiner in the Courts at Chicago, but has recently undertaken similar work in Washington. His book, *The Individual Delinquent*, published in 1915 by Heinemann of London, is of special importance. In this book many tests

* Burt, "Experimental Tests of General Intelligence," *British Journal of Psychology*, vol. iii., 1909, p. 169.

are described; we shall briefly refer to a few of his tests, of which we have had practical experience and found to be useful.

Test 1: Picture Form Board.—This is a picture of a horse and colt in a field with some fowls. Eleven small pieces are cut out, and can be removed from the board. “This test is given to interest, and to get a first general measure of the individual.” “At about seven years of age, any normal child should be able to do it in its entirety.” A young child will accomplish the task in a little over three minutes, while a bright child of eleven can often do it in less than two minutes.

Test 4: Construction Test “B.”—This is a plain, rectangular piece of wood from which eleven pieces of varying size and shape can be removed. The test, of course, is to replace them correctly. Most normal offenders of twelve do this in from one to three minutes; the most important point, however, in connection with this test is the method of accomplishing it. What we want to see is “the attitude of planning as put over against taking the chances on trial and error, and particularly as against the repetition of impossibilities.” We have found this test particularly helpful in forming an estimate of manual capacity. If a defective does this test rapidly and easily we always endeavour, if possible, to keep him outside an Institution, and try ordinary work.

Test 5: Puzzle Box.—This is a square wooden box, the inside of which can be seen through a window in the lid. The lid is secured by a clasp fitting over an eye, through which is passed a staple held in position by a ring attached to a cord which passes into the box through a circular opening in the side. Inside the box

this cord is kept taut by an arrangement of three other cords and rings passing over fixed metal supports, one cord passing through an opening in the side to be fixed elsewhere. A buttonhook is supplied, and by its use one of the rings can be slipped off its peg, and then by a series of moves the staple is freed and the box can be opened. "It is an example of a concrete problem to be reasoned out from perceived relationships; each step to the solution—namely, opening the box—is plainly visible." "Nearly all of our offenders above twelve who have ordinary ability can open this box well inside of ten minutes." The important point is to observe whether the correct steps are interspersed with errors; this should not be. This test is much more suitable for boys than girls. It is really a test of capacity for planning.

Test 6: "Aussage" or Testimony Test.—This is a test of the ability to recall a scene that has been presented. The scene depicted is a butcher's shop, in which the butcher, standing with an upraised knife, is just going to cut off some of a string of sausages for a woman customer, who has a little girl and a dog with her. There are several other objects in the picture. A bright child of eight can give a good account of this, bringing out most points on cross-questioning, at any rate. A *good* account is twelve or fifteen items on free recital, and eight or ten more on inquiry. A *bad* record is more than two or three errors, or acceptance of more than two suggestions.

Test 23: Pictorial Completion Test.—This is a rectangular wooden board with pictures painted on it of several obvious situations, such as that of a boy who has just broken a window in a hut by throwing stones, while an old man who is standing by is pointing to the broken glass on the ground. The

other incidents depicted include a little girl, whose hat has evidently been blown off by the wind; a cart, the wheel of which has come off; a boy running away from a dog, and two boys playing with a football. Ten small squares, all of the same size, can be removed from the board. A number of alternative squares of the same size, and depicting either blanks or objects which would only appear to a person of low intelligence as suitable for filling in, are provided. The squares are removed from the board, and then mixed with the alternative squares; the task is to replace the proper ones.

We have found this a valuable test, and at one time hoped that it would turn out to be a single test which might be taken as diagnostic of mental defect, especially as Dr. Healy himself says that he has seen no feeble-minded person able to do it without error. Under these circumstances, it is important to state that we have recently examined two feeble-minded persons, who did it without any mistake. One was a feeble-minded young woman, nineteen years of age, who had tried to injure her baby, which was born in the Workhouse. She had married a Chinaman who said he would not live with her any longer because she had been unfaithful to him. She had had several situations, being unable to keep any place long. She was able to read and perform very simple calculations. She knew the date, but was very ignorant. She said there were thirty-two weeks in the year, and that Paris was in London. She said it would take ten hours to go from London to Birmingham (a two and a half hours' journey). She said she had never heard of Germany. Her mental age (Terman Revision) was eleven years, but this was only reached by crediting her with two or three doubtful passes.

She, however, did the Form Board and Construction Puzzle in three minutes each. The Field and Ball problem she did badly. Her memory, judgment, and power of calculation were weak. The Matron of the Workhouse reported that she is clever with her hands, but is very stupid otherwise. The second one was a feeble-minded man, aged forty-five, who had scarcely ever been able to earn his living. His mental age (Terman Revision) was only $7\frac{6}{12}$. Dr. Hamblin Smith, Medical Officer to H.M. Prison, Birmingham, who also found him to be mentally defective, reported that he did the cricket-ball, the Heilbronner, and the Pictorial Completion Tests quickly and accurately.

In our experience this Pictorial Completion Test sometimes gives important indications of moral failings and other poor capacities; but some moral imbeciles, especially those of the verbalistic type, come out well in this test, although they may fail badly with an apparently simpler one, such as the Construction Test "B."

Both these tests, and still more the Testimony Test, give some idea of the suggestibility of the person who is being examined. A more definite test of suggestibility is the line-copying test.* "The subject is shown, one at a time, a series of lines printed on cards. The first three form a series of regularly increasing lengths. The remainder all have the same length as the third line. The subject is asked merely to reproduce the length of each line by drawing it on paper. The marked and regular increase in length of the first three lines serves as a suggestion that the increase will continue throughout the series, so that the subject may continue to

* Woodrow, *op. cit.*, p. 208.

increase the length of his copies long after the increase in length of the lines presented to him has stopped. The results sometimes obtained are almost incredible. Some children act as though they had completely forgotten what they were originally told to do, and lapse into a state of mind where each line is merely a signal to draw one a little longer than the previous one."

In connection with cases examined at the Courts and moral imbeciles, important tests are those designed to estimate the appreciation of an ethical standard. For this purpose Dr. Healy has a Reaction Test. This is in the form of a printed statement of two difficult situations, in each of which arises the question of the right course to pursue.

Dr. Guy G. Fernald,* Resident Physician at the Massachusetts Reformatory, Concord, has also devised useful differentiating tests for the defective delinquent. He uses a set of twelve tests, which include some of those already described, and a set of ten questions, making up an "Ethical Perception Test." There is also an Ethical Discrimination Test, which consists of a list of ten offences, to be arranged in order of their gravity.

The offences are:

1. To take two or three apples from another man's orchard.
2. To take a cent from a blind man's cup.
3. To break windows for fun.
4. To throw hot water on a cat, or in any other way cause it to suffer needlessly.
5. To break into a building to rob it.

* "The Defective Delinquent Class: Differentiating Tests," by Guy G. Fernald, A.M., M.D., reprinted from *American Journal of Insanity*, vol. lxxviii., April, 1912.

6. To take money as " Graft " or " Rake Off " when you are a City or Government official.
7. To try to kill yourself.
8. To get a nice girl into family way, and then leave her.
9. To set fire to a house with people in it.
10. To shoot to kill a man who runs away when you try to rob him.

The Ergograph affords an important test, not only for delinquents, but also for more ordinary defectives when the question arises of their capacity for work in the ordinary world.

Many of these tests are in themselves by no means diagnostic of mental defect; they simply measure certain capacities which it is important we should know, either as an aid to diagnosis or to suggest the treatment required.

An excellent illustration of the practical value of tests such as we have described is put forward by Dr. V. V. Anderson, Psychiatrist in Charge of Special Work in Mental Deficiency, the National Committee for Mental Hygiene. " Would not the experience of the United States Army in the present war prove valuable to every state in the Union? At the beginning of the war, the War Department requested the authorities at the Fort Leavenworth Disciplinary Barracks to estimate the increase in delinquency to be expected with the drafting of an army of three million men. This estimate was to be based upon the experience of the Civil and Spanish Wars and the Mexican Border trouble. The official estimate was that it would be necessary to provide for 50,000 delinquents. As a matter of fact, 5,000 was the highest mark ever reached—one-tenth of the expected increase. It may be remarked that every

soldier, on his entrance into the army, was given a mental examination, and thus the mentally abnormal and unfit were rejected. Correlated with this we find a striking decrease in delinquency—one-tenth of the expected increase.

“Furthermore, in civil life, it is found that at least 50 per cent. of the inmates of the state prisons throughout the country are suffering from abnormal nervous and mental conditions. Now, with the elimination of the most serious cases as unfit for army life, it was found that only 10 per cent. of the 5,000 delinquents suffered from any abnormal nervous or mental condition.”*

The necessity on such considerations of a psychological examination in the American Army was confirmed by the knowledge that the lack of any such examination in the English Army led to the enrolment of some defectives who were worse than useless. The mental examination in the American Army included the Binet-Simon Tests, some of Dr. Abelson's, and a number of ingenious tests of the capacity for rapidly carrying out simple instructions and realising an uncomplicated situation. The actual tests, which are highly instructive, are presented in a book, *Army Mental Tests*, by Henry Holt and Co., New York City. The official report of psychological service is in three parts among the memoirs of the National Academy of Sciences. Copies can be had from Mr. Paul Brockett, Secretary,

* “Mental Defect in a Southern State.” Report of the Georgia Commission on Feeble-mindedness and the Survey of the National Committee for Mental Hygiene. Prepared with the assistance of V. V. Anderson, M.D., The National Committee for Mental Hygiene, Incorporated, 50, Union Square, New York City, 1919.

National Academy of Sciences, Smithsonian Institution, Washington, D.C.

We have urged the importance of employing some series of tests in all examinations of defectives; in high-grade cases and criminals this is essential. When time is very limited, and a rough and ready estimate is all that is expected, we have found we can obtain fairly definite indications from the use of the following three tests: (1) The Vocabulary Test, as presented in the Terman Revision. This gives a rough indication of the mental age. (2) Healy's Form Board, which indicates the capacity for manual work. (3) Pictorial Completion Test, which may give a clue to the moral character, and type of mental make-up.

We have already stated that we hoped at one time that this Pictorial Completion Test might turn out to be a Single Test which would decide the matter, but have found that it is not always sufficient. At the present moment we are awaiting with interest the final conclusion of Dr. E. Prideaux, who is carrying out an important investigation in the Psychological Laboratory at Cambridge on the Psychogalvanic Reflex Test. In answer to our inquiries Dr. Prideaux has kindly written to say: "So far I can only conclude that the psychogalvanic reflex is provoked by a sudden diminution of the polarisation resistance normally produced by the passage of a constant current, and that a small galvanometric response means either (*a*) that little or no emotion is aroused in the patient, or (*b*) that the skin of the patient is not affected by the emotion aroused. On the evidence so far obtained the psychogalvanic reflex cannot be regarded as a test of emotivity, but only as affording information as to the condition of the skin. The factors which are responsible for the variation of

polarising resistance in different persons is yet to be determined, but the evidence tends to show that the skin polarisation effects are correlated with the functions of the brain. So far as my experiments go at present persons of the mentally deficient class tend to give a low psychogalvanic reflex." The low psychogalvanic reflex found in mental defectives, when taken in conjunction with their marked outward response to anything giving rise to a strong emotion, such as fear, will probably be an important aid in diagnosis. The constitution of defectives is such that they have poor control over their actions, and little capacity for repressing their emotions. It should be explained that the psychogalvanic reflex is measured by a reflecting galvanometer, while a constant current of 2.8 volts is being passed through the subject, and balanced by means of a Wheatstone Bridge with an Ayrton-Mathus moving coil galvanometer suitably shunted. The person under observation is seated in a chair, the hands being immersed in two bowls containing warmed 2 per cent. saline, into which dip zinc electrodes. There is usually no diminution of resistance, constituting the psychogalvanic response, till a strong emotion is aroused. Then the movement of the recording beam of light gives a definite indication, although the subject may show no outward and visible sign of his distress. The emotion may be aroused by a special word in a series of words read out, a special question, a loud noise, etc. An intense psychogalvanic response is an indication of an emotional complex. We would refer those who are specially interested in this test to Dr. E. Prideaux' "Review of the Psychogalvanic Reflex" in *Brain*, vol. xliii., part i., 1920. He states there that the effects of different stimuli vary in

different individuals, some reacting more to sensory stimuli than to stimuli involving the ideational processes, and says: "There certainly appears to be some correlation between intellectual development and the reactions to the two different classes of stimuli. The greater the intellectual development the more pronounced are the reactions to ideational stimuli. It is certainly my experience that the reactions in subjects of poor intellect, as evidenced by their low standard at school, are rarely so marked as in my intellectual subjects, and I have attributed this to the fact that the intellectual subject has usually a much greater control over his emotions, and has a wider range in the association of ideas. Claparède* has reported experiments on four idiots of the lowest grade, in whom no psychogalvanic reflex of any kind was obtained even after painful stimuli, in spite of the fact that the stimuli were perceived, and were responded to by marked muscular reactions."

In the space at our disposal we cannot further consider the interesting and important subject of Tests, but must refer those who desire more information and other tests to such works as Whipple's† *Manual of Mental and Physical Tests*, or P. B. Ballard's‡ recent book. We must, however, draw attention to the great importance, especially in criminal work, of studying the *attitude* of the person who is being examined. This has attracted some attention in America, where investigators have

* E. Claparède, "Sur le Phénomène psycho-électrique." *Extrait des Arch. des Sc. physiques nat.*, 1911, t. xxxi., p. 379.

† *Manual of Mental and Physical Tests*, 2 vols., by Guy Montrose Whipple, Ph.D., Warwick and York, Baltimore, U.S.A., 1914.

‡ *Mental Tests*, P. B. Ballard, M.A., D.Litt., Hodder and Stoughton, 1920.

occasionally found considerable variation in the results, according as to what was expected to be the result of a good or bad record. Thus a prisoner, who believes that a verdict of mental defect will leave him absolutely free, may respond to tests in such a way as to give a low mental age, and subsequently, when he has realised it will be to his advantage to do well, show that he has a much higher degree of intelligence. On one occasion the writer saw a defective in prison, who maintained that he could not read; a few days later he was induced to read a long passage fluently. The experienced investigator, who is alive to this possibility, is not likely to be deceived.

It must also be remembered that many defectives have little power of continued attention, and are more variable than normal persons, so that a high grade defective, who responds well to the first few questions or tests, may fail miserably if the examination is prolonged. In high grade defectives sometimes no decision can be given till a prolonged examination or repeated examinations have been made.

In devoting so much space to the subject of Tests, some of which are meant for adult cases rather than children, we are conscious of having somewhat overstepped the limitation implied in the title of this book. A definite line of demarcation for testing purposes cannot, however, be set up on the basis of actual age. Moreover, it may be of interest to our readers to have before them a fuller account of the various studies in testing (chiefly by American authorities) than is to be found in publications on mental defect which have recently appeared in this country.

Before discussing any special types, a few general

remarks on prognosis will be useful. This is an aspect of the subject to which parents and guardians not unnaturally attach the greatest importance. First we may remark, with regard to the broad division into primary and secondary cases, that the prognosis in the former is, as a rule—contrary to the popular idea on the subject—better than in the latter. The fact is that in the one there is merely defective development, and this, under favourable circumstances, may be fostered and promoted; in the other there is actual lesion of brain tissue, and this we know is irreparable. Superficial appearances are in favour of secondary cases, for the others are often handicapped by ill-formed and sometimes repulsive features; yet our experience is quite in accord with that of the late J. Langdon-Down,* that “the prognosis is, contrary to what is so often thought, inversely as the child is comely, fair to look upon, and winsome.” There are, however, a few cases of mild traumatism, and even of post-inflammatory lesion, in which a more cheerful view may be taken, especially in these days of brilliant brain surgery.

In primary cases Dr. Lapage has shown that the greater the mental deficiency the later is the child in learning to walk and talk, as a rule. The age, therefore, at which these accomplishments were acquired are facts of considerable importance in prognosis. A comparison with the facts of the development of infants we have just given (p. 114) will often be useful; after four years of age the Intelligence Quotient (as described on p. 121) will often help in giving a forecast of the future.

In the first instance the prognosis must be guarded; as shown in our concluding chapter, the number of

* *Obstet. Trans.*, vol. xviii.

defectives who are capable of holding their own in the world is limited, while the number who find their way into institutions is large. When working at Stoke-upon-Trent for the Royal Commission on the Care and Control of the Feeble-minded, Dr. Potts showed that the highest grade of the feeble-minded can sometimes work, and keep themselves for a time, yet drift into the workhouse at an early age. Half of all the cases were in the workhouse by the time they were thirty. Some have to be placed in lunatic asylums; the last annual report of the Birmingham After-Care Committee which dealt with conditions before the Mental Deficiency Act (1913) came into force, and which was published in June, 1915, showed that nearly 10 per cent. of their cases had then met with this fate. The latest report of the same committee (June, 1920) shows that in consequence of the administration of the Act, while a slightly larger percentage, 12.8, are in special institutions, only 1.03 per cent. are in lunatic asylums, the larger number of those dealt with under certificate being more happily placed in Institutions for the Mentally Defective. The Birmingham Committee for the Care of the Mentally Defective, however, reported in October, 1920, that of the 311 cases they had dealt with up to date under the Mental Deficiency Act, 25 had been obliged to be transferred to a lunatic asylum. It is important to look for any signs of dementia præcox, which affects more particularly the higher grades. This condition often develops soon after puberty; first will be noticed failure to improve; later a change of disposition, peripheral anæsthesia, exaggerated tendon reflexes, and signs of negativism or other disorder of action characteristic of some form of dementia præcox, settle the case.

There is a close relationship between dementia præcox and congenital mental defect, cases of both occurring in the same family; sometimes in dementia præcox it is found that the mother is mentally defective. It is not surprising, therefore, that Kraepelin* should say: "Not infrequently one learns further that among the brothers and sisters of the patient there are found striking personalities, criminals, queer individuals, prostitutes, suicides, vagrants, wrecked and ruined human beings, all being forms in which more or less well-developed dementia præcox may appear." Further, much that we have said in regard to the etiology of mental defect applies equally to dementia præcox, which has been ascribed by Tschisch† to "suppression of defective development of sexual activity," and by Lomer‡ to "disorders of the internal secretion of the sexual glands," while attention has also been drawn to the relationship with disorders of the thyroid gland.

Periodical testing by the Binet-Simon scale often helps; the child who improves year by year may achieve something after leaving school; the child who fails to advance after eleven or twelve never will. It must be remembered that the mental age affords no record of what a child has learnt; it is a measure of capacities. The feeble-minded child may improve with teaching and practice in simple mental operations, but does not necessarily increase in mental age. "What a child can learn, and how fast he can learn, depends upon his mental age; but learning

* *Dementia Præcox*, by Professor Emil Kraepelin. Translated by R. Mary Barclay, M.A., M.D. Edited by George M. Robertson, M.D., F.R.C.P. (Edin.). Edinburgh: E. and S. Livingstone, 1919, p. 234.

† Quoted by Kraepelin, *op. cit.*, p. 243

does not greatly affect the rate of growth in mental age. This is true of adults. They continue to learn throughout their lives; but they do not continue to increase in mental age after they have reached the adult stage.”* Further hints on prognosis will be given under the special types.

Special defects such as **word-deafness** and **word-blindness** are not recognised till the child is of school age; these conditions have been fully discussed in the last chapter, and only require to be mentioned here.

Passing now to some of the typical groups, let us first take the small heads, those with greater or less degree of **Microcephalus**. The theories that this is an atavistic variation or the result of premature synostosis have both been disproved; the small skull is simply the envelope of the brain of which the normal development has been arrested, probably about the fifth month of gestation. “Microcephalics usually come of a pronounced neuropathic stock, their brothers and sisters are often typical degenerates, and frequently one or more of them suffer from the same condition.”† The diagnosis, as has been explained, depends not only on diminutive size, but also on a characteristic shape of the head. The prognosis may be said to be, generally speaking, favourable or otherwise, in proportion to the size of the head. With heads under 18 inches in circumference the manifestation of mental power is usually so small as to come under the category of idiocy; between 18 and 19 inches the cases may be designated as imbecile; and from 19 to 20 inches is not an uncommon measurement in cases of mere “feeble-mindedness.” There is hope of improvement under training, especially for the higher

* Herbert Woodrow, Ph.D., *op. cit.*, p. 37.

† A. F. Tredgold, *Mental Deficiency*, third edition, p. 175.

grades of this type. Dr. Shuttleworth had under training for four years a mentally feeble boy whose head circumference increased during that time from 19 to 20½ inches. As the sensorial and muscular powers are usually good in microcephalic cases, the powers of sucking, grasping, etc., are not impaired, while the best of them may be taught industrial work. We have known a girl with a head of 18 inches employed as an assistant dormitory maid, and a boy with a head of 19 inches helping intelligently in a bakehouse. The physical health of microcephalic children is usually not amiss, and under favourable circumstances they may live to adult, and even advanced, years. Some simple occupation, not requiring headwork, is their rôle, the mental being limited by the cranial capacity.

But, as old Fuller quaintly puts it, though "heads are sometimes so little that there is no room for wit, they are sometimes so long that there is no wit for so much room." We have already remarked that *long* heads do not necessarily go with mental deficiency—sometimes the reverse; if Fuller had written *large* heads instead of *long*, it would have been more in accord with our experience. We refer, of course, to the **Hydrocephalic type**.* In hydrocephalus the degree of mental defect varies greatly, and is not proportionate to the deformity. The prognosis is usually bad, but much depends on the cause and age at which it occurs, and whether the condition is stationary or slowly progressive. To determine the cause, an examination of the fluid withdrawn by lumbar puncture may be useful; this is often also the best form of treatment. The distinctions previously indicated differentiate this type

* See Plate V. (opposite p. 61).

from that of the **Hypertrophic** heads occasionally met with. Hypertrophic change is sometimes associated with rickets. In many hypertrophic cases there is considerable muscular weakness, even when the bodily health is fairly good; manual work in consequence is done with difficulty; the speech may also be affected. There is often complaint of headache; sometimes encephalitis and acute mania supervene. Epilepsy may be a complication; sometimes the fits gradually subside, sometimes they get steadily worse, and may be the cause of death. The prognosis of hypertrophy of the brain is therefore unfavourable, whereas in hydrocephalus, after the acute symptoms have subsided, the prospects of improvement under judicious training are considerable.

Cases of **Oxycephaly**,* or, as it is better called, "Tower skull," are recognised by the large protruded eyes, absence of supra-orbital ridges, and the dome-shaped mound rising up from the forehead and separated from the temples by shallow furrows. This rare condition has been fully described in the preceding chapter (p. 73).

The chief characteristic of cases **Primarily Neurotic** is the impression they give of weakness, mental and physical; there is little power of attention. Asked to look at an object held up in front of them, the eyes quickly wander. Children of this type are slackness personified. If told to extend the arms in front, their response is feeble; the arms are not straight nor raised to the shoulder-level. Warner's "weak hand balance" is noticed. "The wrist droops, the bones of the palm of the hand are somewhat folded together, while the thumb drops and all the fingers are slightly bent." Often the right hand

* See Plate XI. (opposite p. 74).

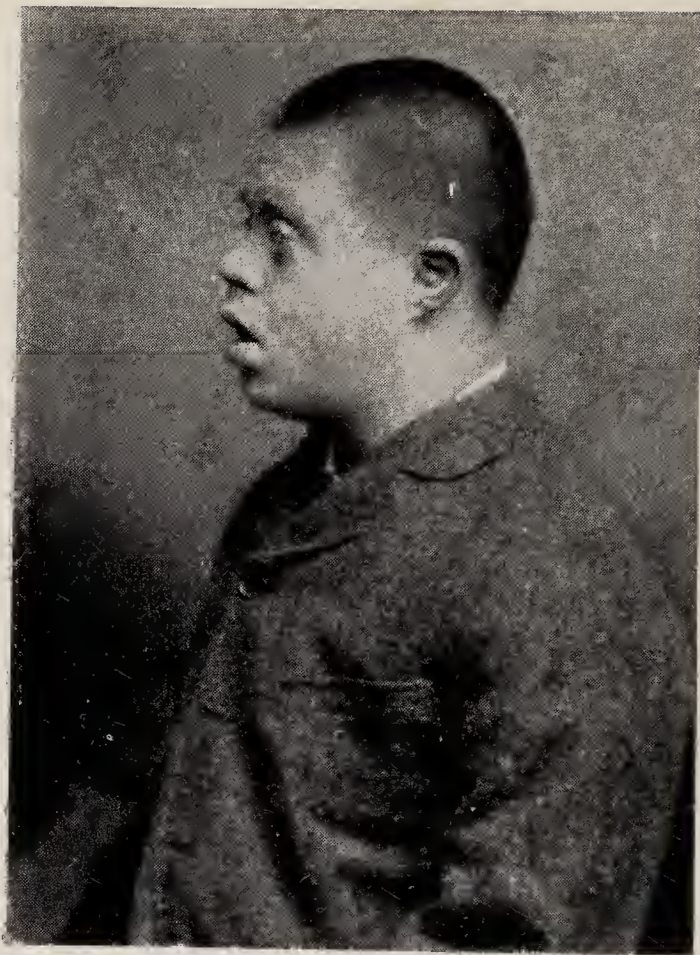


FIG. 1.—“ MONGOL ” PROFILE.



FIG. 2.—“ MONGOL ” TONGUE.
MONGOLIAN TYPE.

is kept at a lower level than the left. The "prow-shaped skull" sometimes associated with this condition has been fully described in the last chapter. This type is not infrequently blended with others. Cases of this class always do better when withdrawn from home influences which are prejudicial (the common neurotic taint of parent and child often interacting injuriously). Placed under judicious management in healthy surroundings, much good may be done by suitable drill and manual exercises in overcoming the twitchings and nervous movements common in these cases. It must be remembered that such individuals are weak all through, and that self-control is with difficulty established and maintained. There is a special danger of their becoming inebriate, if not carefully guarded. Slight cases of this group are not uncommon, and are often a source of continual anxiety and distress to their relatives and friends.

With regard to the "**Mongol**" type,* the form of the head, the almond-shaped eyes, obliquely set, the epicanthic folds, and the squat nose, are characteristic. The hands are usually broad, and the fingers short, the little finger often being curved inwards. The feet also are characteristically clumsy, with a marked cleft between the big and second toes. Laxity of the joints is a marked feature. The skin is usually coarse in epidermis, if not furfuraceous; many have sore eyelids, some fissured lips; the hair is usually wiry. One of the most striking peculiarities is the state of the tongue, which is transversely fissured and has hypertrophied papillæ.†

* See Plates XVI., XVII. (opposite pp. 141, 142).

† See Plate XVI., Fig. 2, p. 141.

Dr. John Thomson* states that in the early weeks of life the tongue is normal; between the third and ninth months the papillæ get enlarged, while during the third and fourth years the transverse fissures appear. This latter peculiarity is possibly due to tongue-sucking, which is so common in this type of defective, acting on an abnormally vulnerable mucous membrane.

The mental condition of defectives of this type is almost as characteristic as the physical; the powers possessed of mimicry are often extraordinary; their love of music great; their idea of time as well as tune remarkable, so that they are apt at drill and dancing. In some ways, therefore, they are full of promise, but they seldom accomplish much, and the ultimate outlook, both on the mental and physical sides, is poor. Something may, however, be expected from a favourable environment, and cases are to be seen sheltered in institutions, of mongolians over forty years of age. In adult life there is still some peculiarity of appearance, but the physical characteristics of the type tend to be less marked as age advances. Varied gradations are met with, from the mentally feeble child with the slight "mongol" taint, to the idiot whose obliquely-set almond-shaped eyes are very suggestive of the "heathen Chinese." Amongst the higher grades fairly satisfactory results of mental training are sometimes obtained. Indeed, we know youths of the mildly "mongol" type who, after appropriate education, pass muster with their brothers and sisters. Simple imitative arts, such as writing and drawing, are acquired without much difficulty, but the coarsely convoluted brain is

* John Thomson, "Notes on the Peculiarities of the Tongue in Mongolism," *Brit. Med. Journ.*, May 4, 1907.

PLATE XVII.



FIG. 1.



FIG. 2.

“MONGOL” HANDS.

To face page 142.

unequal to higher intellectual operations, and calculation is a stumbling-block. Simple industrial occupation, such as that of the garden and farm, may be followed, but the clumsy, ill-formed fingers militate against success in mechanical work requiring fine adjustment. From the physical side the prognosis is not good. They are generally delicate and very susceptible to cold, being apt to suffer much from chilblains. They are prone, moreover, to mucous catarrhs of the digestive and respiratory tracts, and the majority die of phthisis before reaching maturity. Many of these cases suffer from cataract, probably of a progressive nature, for it is not observed before nine years of age. Dr. A. W. Ormond* found stellate opacities of the lens in nineteen of a series of twenty-eight cases. They are liable also to congenital heart disease, and some die young from this cause. On post-mortem examination in such a case, the foramen ovale is usually patent, and there may be in addition some defect in the interventricular septum, as described by Dr. Guthrie in the discussion on Dr. Archibald Garrod's communication to the Clinical Society.† Cases with this defect are not often seen in institutions, for various reasons; in the first place many die before the age for admission; secondly, they are more common in better class families who can afford to send them to private schools, where sometimes, if the numbers are small, only mongolians may be seen; in addition they are usually easy to manage, and so can often be kept at home.

We have suggested in the past that they are essentially *unfinished* children, and that their peculiar

* A. W. Ormond, *Brit. Med. Journ.*, November 18, 1911.

† See *Brit. Med. Journ.*, October 22, 1898, p. 1255.

appearance is really that of a phase of foetal life. Dr. John Thomson* has, however, improved upon our description by the use of the term "ill-finished," pointing out that, although something goes wrong in their growth in very early intra-uterine life, probably in the second month, yet their later development goes on continuously, though badly. Some defect of formative force may usually be traced in connection with the intra-uterine life of these cases, not uncommonly ill-health or mental depression of the mother; and it is remarkable that nearly half of these children are the last born of a long family, when the procreative powers are at a low ebb.

Dr. G. A. Sutherland† has concluded that mongolism is probably parasymphilis, because he found syphilis in eleven of his series of twenty-five cases, and strongly suspected it in three others. We have, however, already pointed out that the claim that syphilis is responsible for a large percentage of cases of mental defect is not established. Like Dr. Tredgold,‡ we have seen many cases of mongolism in which syphilis was not even to be thought of. As evidence in favour of this, we can state that, when Dr. Gordon§ subjected eight cases to the Wassermann reactions, not one gave a positive result.

We have already pointed out that mongolians are not instances of hereditary mental defect; indeed, the parents are often highly gifted; there may be, however, a neurotic taint.

With regard to **Eclampsie** cases (the history of

* John Thomson, in *Diseases of Children*, edited by Garrod, Batten, and Thursfield, p. 882.

† G. A. Sutherland, "Mongolian Imbecility in Infants," *Practitioner*, December, 1899.

‡ A. F. Tredgold, *Mental Deficiency*, third edition, p. 213.

§ J. L. Gordon, *Lancet*, September 20, 1913.

which will help us to a diagnosis), the prognosis varies with the severity of the fits. A certain number of fits of doubtful origin in infancy, even when they recur frequently, leave no permanent bad effect, although for a time after they have ceased the child is dull and apathetic. Nor does any serious result follow the so-called "rickety fits," often associated with tetany and laryngismus stridulus. Still, the prognosis must always be guarded, as, according to Dr. Leonard Guthrie, "about 10 per cent. of infants who suffer from convulsions become epileptic in after-life."*

The possibility of the case being one of **Tuberous Sclerosis** must be kept in mind; a diagnosis can only be made when there is a palpable renal tumour or peculiar cells in the urine, or the condition of adenoma sebaceum can be seen. In tuberous sclerosis the prognosis is always bad, death taking place in childhood or early adult life.

As regards **Epileptic** cases, Dr. W. Aldren Turner† has shown that mental impairment is more likely to be present when there is an hereditary neuropathic tendency. His records from the Chalfont St. Peter colony also show that, while some epileptics exhibit no mental enfeeblement after thirty years or more, the majority, as time goes on, develop a bad memory or more serious sign of failure, 29.1 per cent. becoming actually demented. Where epilepsy is associated with the lower grades of idiocy, the probability of organic lesions renders the prognosis specially unpromising. In milder cases of mental enfeeblement associated with epilepsy, the successful treatment

* *Diseases of Children*, edited by Garrod, Batten, and Thursfield, 1913, p. 710.

† *Epilepsy*, Aldren Turner, 1907.

of the epilepsy is followed by considerable mental improvement, and should the cessation of fits be permanent, the mental deficiency may gradually disappear.

According to Dr. W. A. Turner, a "*cure of epilepsy*" may be defined as arrest of the seizures for a period of eight or nine years, when it will be found that from 10 to 12 per cent. of cures may be expected."

In the last chapter we have described the important group of cases associated with abnormality of the Sella Turcica, in some of which pituitary extract may be given with beneficial results.

Syphilitic cases* can sometimes be distinguished by the history and signs of inherited syphilis. As we have already pointed out, the taint is undoubtedly a factor in many cases of mental deficiency where its external manifestations are not obvious; in some of these careful examination of the rest of the family may give an important clue, while the Wassermann reaction is a useful but not infallible guide. Degenerative changes due to this cause may manifest themselves early in life, and give rise to cranial osteitis, meningeal inflammations, and eclampsic, epileptic and paralytic symptoms, so often associated with mental defect in children, and frequently assigned as its cause, though more correctly regarded as stages in the development of the disease. The most characteristic type of mental degeneration in the young associated with hereditary syphilis is that designated by Dr. Clouston in 1877 "*juvenile general paralysis*" (and by Dr. Judson Bury as "*juvenile dementia*"), in which a breakdown (mental and physical) occurs at the period of second dentition

* See paper by G. E. Shuttleworth, *British Journal of Children's Diseases*, April, 1908.

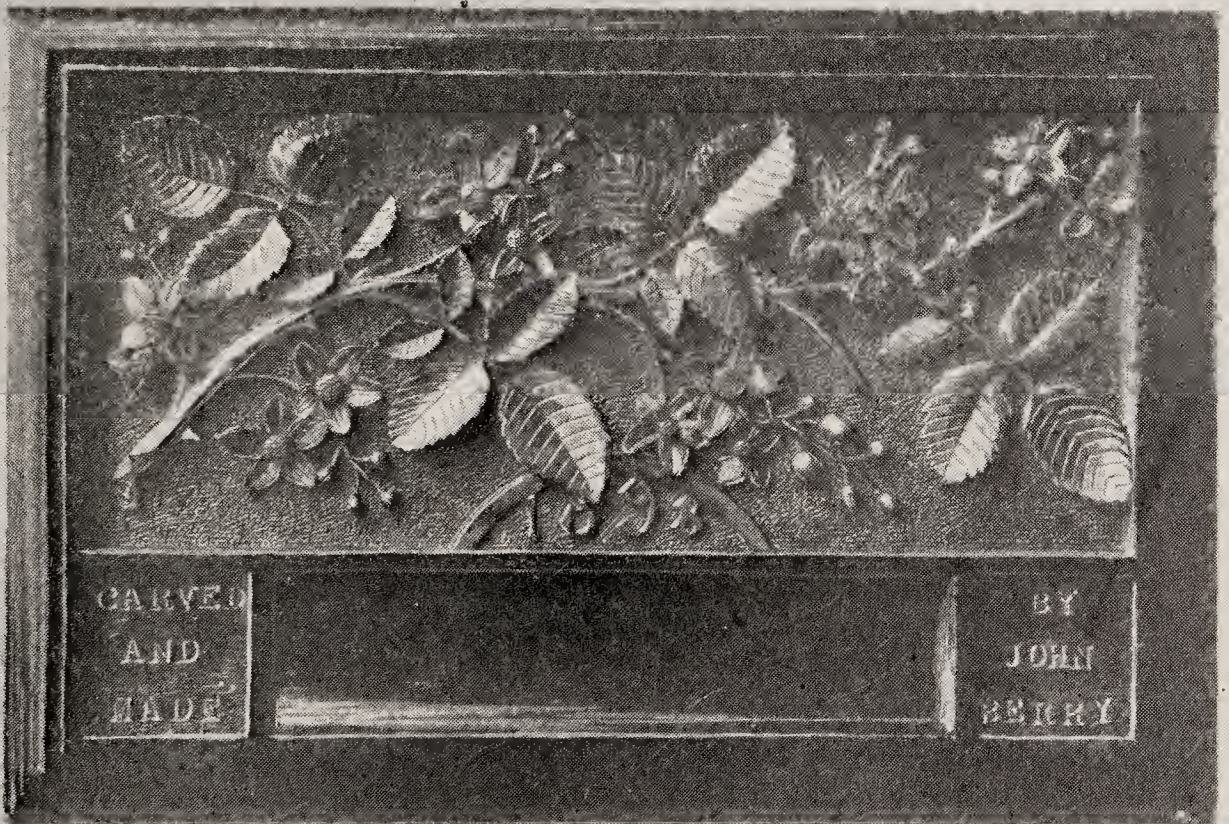
or advent of puberty, leading to a fatal issue in a few years. The first sign of mental weakness is the loss of the most recently acquired accomplishments—*e.g.*, writing or arithmetic. The hesitating, indistinct articulation and Argyll-Robertson pupil which may develop a little later, together with the general feebleness of the limbs, leave no doubt as to the diagnosis. Such cases are found not to be so rare in asylums as was formerly thought, and Sir Frederick Mott has tabulated the histories of twenty-two in volume i. of the *Archives of Neurology*. It would appear from this table, as well as from a paper in the *Practitioner*, January, 1908, in which an aggregate of forty cases are dealt with by the same author, that in at least 80 per cent. of these cases there was evidence either of a syphilitic family history or of the presence of syphilitic stigmata (in several instances of both), and he states his opinion that, "though there may be many exciting causes, the predisposing cause of this disease (juvenile general paralysis) is nearly always hereditary syphilis," thus agreeing with the conclusions of Thiry, Alzheimer, Mendel, and other Continental pathologists, that inherited syphilis plays a predominant rôle in its etiology.

In our experience, syphilitic cases do not respond much to education. Even if they survive the second dentition and puberty without changing for the worse, they do not as a rule improve.

In cases of mental deficiency associated with **Paralysis**,* the history of the case, and the occurrence of convulsions during the first few days after birth, distinguish the form due to injury at birth from that associated with paralysis developing later on as a result of some bacterial infection, endocrine gland

* See Plate X. (opposite p. 73).

failure, or vascular lesion. In the last there is generally a history of convulsions later in infancy, with sudden loss of power on one side; when the paralysis begins to improve, spastic contractures are left, and there is the characteristic hemiplegic gait. In the first class of cases, which used to be spoken of as birth-palsy, the mental deficiency is often more apparent than real, the patient improving wonderfully under appropriate training. The paralysis may be either hemiplegic or diplegic, the latter being the more common; the amentia is less marked in the former. The athetotic movements sometimes interfering with ordinary use of the hands may be overcome by suitable finger exercises (to be described later); as considerable power of will exists, the patient will often be able to co-operate with the doctor in trying to combat his infirmities. We have repeatedly seen children of this type, at first unable to hold a pencil, develop into admirable draughtsmen; indeed, the graphic faculty frequently seems to be good in these cases. Intricate macramé patterns have also been worked out by them, and delicate wood-carving done. Dr. Shuttleworth once had under his care a patient of this type, J. B., who at twelve years of age could not read or write, and could do nothing beyond washing and dressing himself, which he accomplished with difficulty, owing to athetosis. Two years later he was able to read, write, and draw a little, and could make simple articles in the joiners' shop. After ten years' training he became an excellent joiner, and gained prizes for wood-carving in Arts and Crafts Exhibitions. Five years later he had become the instructor in wood-carving. A recent report states that "he is able to explain his methods; is an accurate and artistic



WOOD-CARVING, DESIGNED AND EXECUTED BY J. B.,
ROYAL ALBERT INSTITUTION.

wood-carver himself; makes his own designs for panels."* It must be remembered, however, that many cases of cerebral diplegia in infancy die either from inanition or some intercurrent disease.

Various grades of mental defect, from simple feebleness to crazy idiocy, are associated with paralysis developed after birth, and the prognosis varies with the degree; the prognosis is, however, worse than in the cases due to injury at birth. In congenital cases speech is often bad, and this fact may be misleading. It must be remembered that they have considerable will-power, and will persevere to overcome their defects. Attention must be directed mainly to the physical side, muscular atrophies and contractions being subjected to electrical treatment, massage, and directed movements; in the milder cases considerable improvement, both physical and mental, may be anticipated. The postnatal cases are particularly liable to epilepsy; should this develop, the prognosis is bad.

There are undoubtedly cases of cerebral paralysis in children with no intellectual weakness, but they are rare. Whatever the parents may think, we usually find a degree of mental irritability, a tendency to epileptic fits, emotional weakness, or other slight mental peculiarity.

When discussing etiology, we referred to the frequent association of syphilis with plegic cases of mental defect, which has been suggested by the results obtained with the Wassermann reaction both by Dr. Plaut and Dr. Gordon. Dr. Gordon,† after exam-

* See Plate XVIII.

† J. Leslie Gordon, M.D., "The Incidence of Inherited Syphilis in Congenital Mental Deficiency," *Lancet*, September 20, 1913.

ining 400 cases of congenital mental deficiency, of which 105 were plegic and 295 non-plegic, found the percentage of positive reactions to the Wassermann test in plegic cases almost treble the percentage in non-plegic cases—viz., 31.4 in the plegic as compared with 11.2 in the others. As regards the particular types of paralysis, excluding juvenile general paralysis of the insane, in which every case gave a positive result, Dr. Gordon obtained positive results in chorea and paralysis in every case, in ocular cases in 50.0 per cent., in diplegia in 48.3 per cent., in paraplegia in 20.4 per cent., and in hemiplegia in 13.6 per cent.

In the diagnosis of **Traumatic** cases the history of a fall or injury to the head must be accepted with discrimination; but falls from careless nurses' arms, from an overturned perambulator, down stone steps, and severe blows on the head, are not improbable causes. The presence of external swelling or hæmorrhage, or the occurrence of fits soon after the accident, will be confirmatory evidence. Sometimes careful examination by X rays will reveal some localised thickening of the bone or membranes. The prognosis varies with the severity of the injuries and their consequences; the influence of an hereditary tendency to nervous disease may be an important factor. We have seen mild traumatic imbecility entirely recovered from in the course of growth and development; the resources of modern cranial surgery make the prognosis more favourable than formerly.

When the signs of **Tubercular Disease** are marked, the prognosis varies with the intensity of the taint. Much depends upon favourable environment; it is remarkable how such cases improve, both mentally and physically, when withdrawn from insanitary

slums and placed under good hygienic conditions, especially when employed in outdoor work in pure country air.

Post-febrile or **Inflammatory** cases are diagnosed by the history, and the absence of congenital defect. Here, again, a radiograph may help. The prognosis is not usually favourable in these cases, though, of course, it depends upon the amount of damage the brain has sustained and the degree of atrophy consequent on meningeal thickening. In some cases irremediable lesions are left; in others the arrest of development from failing nutrition may, under favourable circumstances, be averted. In this group should be included the cases that occur after **Polio-encephalo-myelitis** (infantile paralysis).

Of **Emotional** cases, caused by shock and fright, there are many degrees. The history usually serves for their recognition, while the absence of the features of congenital abnormality, with persistent nervousness, and sometimes a peculiar scared expression, will help in the diagnosis. Much good may be done by placing such a patient in a favourable environment with suitable training, and so gradually giving him confidence in himself; the value of Psychotherapy in exceptional cases must not be forgotten. We have known children who have been victims of shock become, after special education, fairly useful members of society. Exposed to the rugged ways of public schools, where they may be jeered and scoffed at, there is considerable risk of mental deterioration.

Toxic cases are recognised by signs of failure in a child, previously normal, who has been drugged with alcohol or opium. The possibility of the presence of such powerful drugs in patent medicines must not

be overlooked. The lesions are of an atrophic character; good results follow withdrawal of the poisons, and the substitution of nourishment appropriate to the child's age.

In the last chapter we gave an account of the pathology of the family type of infantile cerebral degeneration designated **Amaurotic Idiocy**. Here we need only say that the diagnosis depends on the onset during the fourth month, or thereabout, of weakness of the muscles and back in a previously healthy Jewish infant, with difficulty of vision. The ophthalmoscope reveals changes in the macula lutea, while later there is optic atrophy and total amaurosis. As the disease progresses, the child is unable to sit up. All the muscles become weak. At a later stage there is muscular atrophy and emaciation. The senses of hearing and taste are preserved; the thoracic and abdominal viscera remain healthy. The prognosis is at present hopeless, patients always succumbing within two years, often much sooner.

The condition occurring in older children, known as **Cerebral Degeneration with Symmetrical Changes in the Maculæ**, has also been described in the last chapter.

The features of **Sporadic Cretinism** are so characteristic that there is usually little doubt as to the diagnosis, which can often be made by the third month. Dwarfing, both of body and mind, with slow reaction and response, a loose baggy skin, tumid belly, bowed legs, broad, squat hands and feet, are some of the general characters.* Then there is the square, expanded head, the sallow complexion, the broad, flushed cheeks, the indented "pug-nose," the pouting lips, and protruding tongue, making up a

* See Plate XII., p. 79, and Fig. 1 on p. 80.

physiognomy which once seen is never forgotten.* Investigation shows deficiency or absence of the thyroid gland, and in many cases supraclavicular fatty tumours. The prognosis, till a few years ago, was most unfavourable. Now, thanks to the experimental researches of Victor Horsley, Schiff, and others, successful treatment by administration of the thyroid gland is an everyday occurrence. Physical and functional development proceed at a rapid rate, and the mental hebetude and slowness characteristic of these cases are usually transformed into a vivacity and activity strangely contrasting with the previous condition; the cretin, however, seldom improves so much as to become quite normal.

In rare cases while the bodily symptoms disappear under treatment, the mental condition does not improve. Dr. Tredgold has an interesting account of two such cases in his book *Mental Deficiency*. Some observers think that, if a normal condition is to be attained, treatment must be begun early—at any rate, not later than the age of twelve months. Less marked improvement may, however, be looked for even when thyroid medication is resorted to only in later years. Dr. Shuttleworth treated with considerable benefit a man of forty-two, who at that age was only 3 feet 1 inch high, was quite imbecile, and suffered from lateral curvature of the spine. After three years' thyroid treatment Dr. Shuttleworth was able to report that he "had been transformed from an inert mass of unintelligent matter to an individual taking some interest in his surroundings, and able to move about and investigate them for himself. His general health had improved, and his

* For table of characteristic differences between Cretinism and Mongolism, see pp. 154 and 155.

capacity for happiness and enjoyment of life notably increased."

It would seem, however, that to secure lasting benefit the treatment must be permanent; relapse is apt to ensue if the thyroid administration is discontinued.

There is a superficial resemblance in many cases between Cretins and Mongolians, both being backward in bodily development, with misshapen hands and feet, squat noses, large tongues, and peculiarities of the integument. On careful examination, however, the difference is considerable. The following table, setting forth the characteristic differences, may be serviceable, for correct diagnosis is of importance to save parents the disappointment of expecting marked improvement from thyroid medication when the case is one of mongolism.

MONGOLISM.

1. Characteristics noticeable from birth.

2. Skull brachycephalic: contour rounded or short oval: longitudinal and transverse diameters nearly correspond.

3. Palpebral fissures "almond shaped," and more or less oblique upwards and outwards. Frequent epicanthus. Strabismus common. Ciliary blepharitis frequent.

4. Cheeks chubby, often florid. Complexion mottled.

5. Lips often transversely fissured. Lower lip may be pursed up over upper.

CRETINISM.

1. Characteristics often not noticeable till sixth or seventh month.

2. Skull dolichocephalic: flat at top (fontanelles close late), expanded laterally; broad behind, often asymmetrical.

3. Palpebral fissures horizontal, but appear small owing to pseudo-œdema of eyelids. Strabismus and ciliary blepharitis less common.

4. Often circumscribed malar flush; complexion ashy or waxy.

5. Lower lip often everted. Mouth open. Drivelling common.

6. Tongue large and coarsely papillated if not fissured. Tongue frequently protruded and drawn back.

7. Skin smooth in infancy, but furfuraceous later; not redundant or "baggy."

8. Thyroid gland palpable to greater or less extent.

9. No fatty tumours (pseudo-lipomata) in posterior triangle of neck.

10. Long bones somewhat shorter than usual, but slender.

11. Hands broad, thumb and little finger short, the latter often curved towards ring finger. Fingers taper at ends.

12. Feet large and flat. Fissure between great and second toe often seen.

13. Expression more or less vivacious and mobile, observant and imitative.

6. Tongue large, but not coarsely papillated or fissured. Tip of tongue thickened, and constantly protruding.

7. Skin dry and scaly; forms folds here and there, being redundant and "baggy."

8. Thyroid gland impalpable to most thorough examination.

9. Fatty tumours (pseudo-lipomata) frequently found in posterior triangle of neck, etc.

10. Long bones shortened and thickened, in some cases bowed.

11. Hands broad, thick, and stumpy, with wrinkled skin. Fingers square at tips.

12. Feet squat; skin redundant about ankles and dorsum of foot.

13. Expression dull and immobile; unobservant and apathetic.

Similarities in Each Variety.

Deficient stature (more marked in cretins), flattened bridge of nose, with expanded alæ, late and irregular dentition, deferred closure of fontanelles, retarded puberty (the last most marked in cretins).

A passing reference must be made to the rare class of **Achondroplasiae**, mistaken sometimes for cretins, but not necessarily mentally deficient. These are usually intelligent but short-limbed dwarfs, distinguished from cretins by their "trident hands,"

healthy skin and copious growth of hair, and also by the absence of "fat pads," swollen eyelids, and characteristic mouth and tongue.

Whilst setting forth the leading characters of these several groups as an aid to diagnosis and prognosis, it is not pretended that we can refer all cases of mental deficiency to a single type. The great majority, indeed, are of **Mixed Types** or of no particular type at all. One of the most unusual combinations we have seen was a well-marked epileptic microcephalic mongolian. Experience aids us in distinguishing and assessing the value of one factor and another in their combinations. Thus traumatism combined with a neurotic family tendency is less hopeful as regards mental improvement than when the history is good. A syphilitic element makes the outlook bad, and the physical prognosis of the mongolian with marked phthisical heredity or a cardiac lesion is most unfavourable.

Care must be exercised at an early age in discriminating feeble-mindedness from retarded mental development amounting to nothing more than "backwardness." In doubtful cases a definite opinion must be withheld, and the child's development carefully watched. The best estimate will be obtained by comparing the patient with a normal child of similar age. Thus tested, a boy of ten will sometimes be found on an intellectual level with the ordinary child of seven; if he has had equal advantages with the latter, we may fairly conclude that he is "mentally feeble." M. Binet and Dr. Simon* regard

* *Mentally Defective Children*, by Alfred Binet and Th. Simon, M.D. Authorised translation by W. B. Drummond, M.B., C.M., F.R.C.P. (Edin.). London: Edward Arnold, 1914, p. 16.

as defective in intelligence a child of nine or more who shows an intellectual retardation of three years. The physical accompaniments previously alluded to, such as developmental defects, nerve signs, and low nutrition, may aid in the diagnosis. There may often be detected by the practised eye indications of the typical forms—such as the Microcephalic, Hydrocephalic, Mongol, etc.—which are more pronounced in cases of actual imbecility; while tubercular, neurotic, and, we may add, rachitic, affections are noticeable in a large number of children whose mental condition is merely subnormal. These signs, in conjunction with considerations of heredity, are of great value in the diagnosis of constitutional defect of intelligence of a minor degree, and also in the prognosis.

Unfortunately, there is sometimes associated with mental defect, particularly when not early subjected to proper training, **moral weakness**, apt to give much trouble in after-life. As Dr. Blandford has well stated in his Lumleian Lectures at the Royal College of Physicians:

“And first, of those who, through congenital defect, or as the result of disease in early life, are mentally deficient—not idiots, but weak-minded imbeciles—children in mind throughout life. They come before us in various ways. Though children in mind, they are very often men and women in wickedness and vice; and it may be necessary to place them under restraint, or to protect their property from being squandered and themselves from being robbed. I know no class over whom controversy is so likely to arise, or where we may have greater difficulty in forming a diagnosis. They are not idiots; many of them have acquired a fair amount of education, can construe a Greek play, or master a proposition of

Euclid. Their memory is excellent, and we cannot compare their condition with a former one, for they have never been any better, so that this test fails us. They have no delusions or hallucinations, and are not insane in the ordinary sense of the word. With regard to many there is no difficulty. When a man or woman of forty submits to be treated like a child of ten—to be taken out and amused, and to have sixpence a week pocket-money—we have not much difficulty in forming an opinion. But the development of others is not so low; yet they are deficient in reason and judgment, and often in conduct. There is a tendency to low and depraved habits, to brutish and sensual enjoyment, to low company amongst whom they are of more importance, and if remonstrated with they show an absolute disregard for truth or for right behaviour. Lawyers will defend these patients and say that they are not insane, and the celebrated Wyndham case shows what can be done by their aid. In examining any such individual we must consider his conduct in regard to his environment and bringing up. What might be passed over in the lower walks of life is in the higher evidence of a degraded mental state. Every case must be judged by itself, and the question must be asked, Is this person able to take care of himself and his affairs? But to sign a certificate is often very difficult, as we may not ourselves witness the insane conduct, all of which we arrive at only by hearsay. It is not to be forgotten, however, that imbeciles are very prone to display violent explosiveness of their nerve centres, and this is specially likely to happen as they advance from the period of puberty to adolescent life.”*

* *Lancet*, April 6, 1895, p. 857.

The connection between criminality and mental deficiency is a subject of vast social importance. It is discussed in an important section, "Mental Defect and Crime," of the Report of the Royal Commission on the Care and Control of the Feeble-minded. To those interested in the subject we would commend the works of W. D. Morrison, Letchworth, Talbot, Havelock Ellis, Lydston, Mercier, Sir George Savage, Sir Bryan Donkin, and others, and the reports by Macdonald to the United States Bureau of Education. Among the most recent books are *The English Convict*, by Charles Goring, M.D.; *Crime and Criminals*, by Charles Mercier; and, most important of all, William Healy's *Individual Delinquent*. Valuable papers—notably one by Dr. Barr—are to be found in the Proceedings of the American State Committees on Charities and Corrections. Dr. V. V. Anderson, Dr. Amos T. Baker, Dr. Guy Fernald, Dr. Bernard Glueck, Dr. Helen Montague, and J. E. Wallace Wallin have also made important contributions to the literature of the subject. Some of their publications are among those distributed free of charge upon application to the National Committee for Mental Hygiene, 50, Union Square, New York City. In our own country Dr. Abelson* and Dr. W. A. Potts† have drawn attention to the importance of a Psychological Examination of Juvenile Delinquents.

We cannot go into the whole of this difficult subject, but must explain that, while many of the feeble-minded gravitate towards immoral and antisocial

* "The Psychology of the Delinquent Child," A. R., Abelson, D.Sc., M.R.C.S., *The Child*, September, 1920.

† "The Mentally Defective and the Unstable brought before the Courts," W. A. Potts, M.A., M.D., *Brit. Med. Journ.*, April 3, 1920.

conduct, only a small proportion of them are really "moral imbeciles." Take the ordinary feeble-minded child or youth away from the bad environment into which he so readily drifts, and place him in healthy and proper surroundings with good discipline; in a short time he will be quite a different creature. Such has been the experience at the Sandlebridge Schools of the Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded. Miss Dendy, who was the Honorary Secretary of that Society before becoming a member of the Board of Control, in answer to inquiries before the publication of our third edition, kindly wrote to say: "I am, however, as you say, sure that in the majority of cases children who have been supposed to be moral defectives do not merit that title at all, and do very well as soon as they are removed from the surroundings which have prompted their evil doings;" adding: "Many children have been sent to us at Sandlebridge as incurably wicked, but we have had to discharge only one youth. He was more lunatic than feeble-minded, or, rather, I should say lunacy supervened on weakness of mind. Occasionally we have to isolate a child for a time, so that it may not contaminate the other children; but, luckily, bad habits are as soon forgotten as good ones."

The true moral imbecile is a different type. According to the Mental Deficiency Act, **Moral Imbeciles** are "persons who from an early age display some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect." As an illustrative case, we will refer to a "youth aged nineteen, the son of respectable people. He was educated at an ordinary school, and subsequently at a technical school,

where he exhibited considerable talent, especially for drawing. He writes an exquisite hand, and is an expert in photography. He has had several situations, usually as a clerk, but if he has not been summarily dismissed, he has always given them up after a few weeks' work. He was a thief from an early age, and has frequently been caught in the act at school and elsewhere. He has several times been in the hands of the police, and has served a term of imprisonment. He is utterly depraved; he lies in bed in the morning, and spends all the money he can get on drink and vice. He steals from his own family, and pawns the clothes with which he is provided. Although he will not do ordinary work, he spends hours in his favourite hobby of enlarging photographs. This he does, not in the usual way, but in a manner suggestive of a mental twist, for he makes a large pencil-drawing of a small photograph, and then photographs the large drawing. So accurately is this done that people believe the enlargement to be effected in the usual way. He is certainly abnormal, for he has a narrow forehead, suffers from an extreme degree of myopia, and has a slightly dilated heart."

Essential features in the diagnosis are the consideration that the crime is out of all proportion to the temptation, that the moral shortcomings are not to be explained by training and environment, and are not influenced by ordinary discipline and punishment. The delinquent often profits little, if at all, by his misdemeanour, and in cases of stealing frequently distributes among others or throws away what he has acquired. There is usually some other sign of defect, but this is not necessarily of an intellectual nature. Often there is some eccentricity of character and a dislike of family order; there

is frequently a tendency to lying, together with bad sexual habits and cruelty towards younger children and animals. The crime of arson may be an overpowering temptation. These cases are very difficult to deal with, though something may be accomplished by prolonged training in favourable surroundings. Fortunately, real moral imbeciles are not common. It is certain that they form a very small proportion of the inmates of prisons and other places of correction. When Dr. Potts conducted an investigation for the Royal Commission on the Care and Control of the Feeble-minded into the number of the mentally defective in the parish of Birmingham, he reported, after examining 403 prisoners, of whom 44, or 10·9 per cent., were defective, that "not a single moral defective was encountered." After regularly visiting the Stafford prison in connection with a similar inquiry at Stoke-upon-Trent, he stated: "It was particularly noticed that there were but few moral imbeciles." We are not acquainted with any statistics showing the proportion of moral imbeciles in a large group of feeble-minded. Dr. Potts* carefully studied during a series of years ninety-seven consecutive cases admitted to a Magdalen Home. He found that thirty-seven were defective in some way, and that, of these, seven might be fairly described as moral imbeciles. These seven morally defective girls were sharp and intelligent, but without any sense of honour or modesty, and were insusceptible to moral and religious training, thereby differing markedly from the majority. Nothing could restrain them from lying and from stealing from their companions. As we have already indicated, the

* "The Problem of the Morally Defective," *Lancet*, October 29, 1904.

prognosis in these cases is bad. Short terms of training are useless, but when firm and judicious training, begun early, can be continued for a long time in proper surroundings, improvement is sometimes effected. It is not impossible that there is a kind of moral centre in the brain, and so these cases, or some of them, have been compared with cases of *agraphia* or *aphasia*. We have, indeed, seen moral weakness develop after a head injury. If a portion of the brain is poorly developed at birth, or destroyed at a later date, it is never replaced by healthy tissue; after a long interval other portions may be educated to assume its functions. For instance, the child without a conscience may be taught that dishonesty is unpopular, and does not pay.

CHAPTER VI

THE PSYCHOPATHIES OF PUBERTY AND ADOLESCENCE

THOUGH this work deals primarily with mentally deficient *children*, it has been thought desirable to introduce a brief chapter dealing with the abnormalities that show themselves during puberty and adolescence—a period in general extending from thirteen to twenty-five years of age. These are often closely connected with states of congenital unfitness, and, consequently, may be regarded as complementary to the more juvenile defects previously described. We are indebted to the acumen of Sir Thomas Clouston for the earliest and most comprehensive investigations respecting the above, his classic work on the *Neuroses of Development** dating as far back as 1891. In Germany, Kraepelin has grouped the signs of juvenile progressive mental deterioration observed at adolescence (other than those of juvenile general paralysis) under the comprehensive designation of “*dementia præcox*”; and Ziehen, Fischer, Jung, and others, have dealt more especially with the educational aspects of the subject.

Juvenile General Paralysis of the Insane has been referred to in previous chapters,† and it will suffice to mention here that Clouston fully described under the

* Published by Oliver and Boyd, Edinburgh, and by Simpkin, Marshall and Co., London, 1891.

† See chap. iv., p. 72, and chap. v., p. 146, etc.

designation of "developmental general paralysis" the cases of two girls, aged seventeen and nineteen respectively, the study of which convinced him that symptoms similar to those familiar to him in the general paralysis of insane adults were "due to hereditary syphilis as the predisposing cause, and to puberty as the exciting cause, with a neurotic heredity as an extra-predisposing cause."*

The degenerative symptoms showed themselves in each case about the age of fifteen as a slow and gradual process of enfeeblement and mental "dissolution," with progressively advancing motor disabilities. In the first case the sixth standard had been reached at school; in the second, the fourth; and in each the knowledge acquired was gradually lost. Mental hebetude, with slowness of comprehension and response, indolence, irritability, occasional fits of passion, and a tendency to dirty habits, were amongst the early symptoms noticed; later there were symptoms of melancholic stupor and fixed delusions. In both cases there had been arrest of bodily growth and of the evolution of puberty, with absence of menstruation and of mammary development; the physiognomy remained childlike, with a vacant and listless expression. There was carelessness as to personal appearance and no sense of shame or feelings of modesty. The speech was high in pitch and monotonous, with a tendency to wavy, sing-song enunciation, though not markedly tremulous. Fibrillary twitchings of the lingual and facial muscles were observed when speaking, and there was considerable hesitation in protruding the tongue. The hands and arms were awkward and shaky in the coarser manipulations and tremulous in the finer

* *The Neuroses of Development*, pp. 74-90.

movements. Grasping power was much impaired, but not notably unequal on the two sides. The muscular power and co-ordination of the lower limbs were also diminished, and the gait was slovenly. There was, however, no marked ataxia, and in the younger case the knee-jerks were exaggerated; in the older and more advanced one completely absent. Common sensibility was impaired. In both cases the pupils were dilated and unequal, with sluggish reaction to light, and there were "Hutchinsonian" teeth. The older patient, whose degeneration had been going on for five years previous to her admission to the asylum, died from gangrene of the lower extremities six months after her admission, her mental enfeeblement and muscular weakness having slowly but steadily progressed. At the autopsy slight adhesion of the dura mater to the skull-cap was found along the coronal suture. "On reflecting the dura mater, there were numerous fine threads of adhesion between it and the arachnoid along the line of the pial veins, especially between the falx and the arachnoid. The arachnoid was milky and the pia mater tough and thickened. On removing the brain, it was found to weigh $34\frac{1}{2}$ ounces. Of this there were $4\frac{1}{2}$ ounces of fluid, and the cerebellum, pons, and medulla weighed $5\frac{1}{2}$ ounces. The convolutions were very well marked and numerous, and there was only slight atrophy anteriorly." Adhesions of pia mater were marked over the convolutions on the under surface of the frontal lobe, and existed slightly on the under-surface of the temporo-sphenoidal, but nowhere else. The two hemispheres were adherent anteriorly, and the nerves of the base bound down by thickened membrane. The lateral ventricles were much dilated, with thickened lining membrane showing a few

granulations, which were also well marked on the surface of the fourth ventricle. There were also adhesions and thickening of the membranes of the spinal cord. On microscopic examination of fresh sections of the brain, there was found to be very considerable thickening of the pia mater, with a close network of fine fibres in the layer just below. A little deeper there were seen a considerable number of spider cells of various sizes, and in the deeper layers the nerve cells proper were very much degenerated, the apical processes of many being absent or truncated, while most of the basal processes were also gone. The nucleus in many of the cells was not to be seen, whilst in others it was vacuolated. In the spinal cord the pia mater was much thickened; there was degeneration of the large cells of the anterior cornua, and the epithelial cells lining the central canal were largely increased.

We have ventured to draw thus copiously from Dr. Clouston's observations both on account of their historical interest and because they serve to mark the pathological character of the changes found in juvenile general paralysis, the incipient symptoms of which (especially in the absence of an authentic history) are sometimes confused with those of original defect. It is noteworthy that in each of the two cases described stress was laid in the admission certificates on the *idiotic* aspect of the patients, though, of course, the history negatived the existence of amentia. It is no uncommon experience for similar cases to be recommended for admission to training institutions for imbeciles, for which, of course, they are utterly unfit. Even apart from a knowledge of the family and personal history, a correct diagnosis may be arrived at by noticing the sluggish, dilated, unequal

pupils, sometimes irregular in outline, and the fibrillary tremors in the muscles of the mouth and tongue. Stigmata of inherited syphilis found in adolescence will also furnish a warning note. It is almost unnecessary to add that the course of juvenile general paralysis is slowly but surely towards a fatal termination. As Dr. Tredgold remarks, "Primary dementia in young aments is of such rare occurrence that its presence, without antecedent insanity or epilepsy, is nearly always indicative of juvenile general paralysis."*

Dementia præcox is the term used by Kraepelin to designate certain forms of mental derangement and degeneration occurring during the period of adolescence in persons not necessarily recognised as defective in their earlier years. Clouston, who had described a similar train of symptoms under the name of "adolescent insanity" more than twenty years previously, lays great stress upon its hereditary character, tracing neuropathic inheritance in 65 per cent. of his cases;† and a neuropathic family history to the extent of from 80 to 90 per cent. in cases of dementia præcox is alleged by German writers.

Clouston calls adolescent insanity "the most hereditary of all insanities," and considers that the 30 per cent. of such cases who die demented were "doomed to this ending from the first by their original hereditary defect." Yet up to about eighteen no evidence of bodily or mental defect may be apparent, though the affection may be looked upon as a condition of "postponed idiocy," evolved only just before maturity. Dementia præcox is now generally recognised as a pathological entity, but it must be

* *Mental Deficiency*, third edition, p. 335.

† *The Neuroses of Development*, p. 116.

remembered that this view has been keenly contested ; and Dr. Shaw Bolton* refers to the term as loosely applied to many types of insanity originating between puberty and maturity. According to Kraepelin,† there are two principal groups of disorders which characterise the malady. On the one hand there is weakening of emotion, while on the other there is “ loss of the inner unity of the activities of intellect, emotion, and volition in themselves and among one another.” In consequence the early symptoms are absence of mental activity, will, and endeavour ; there is no independent action, and there is disordered association evidenced by moods, poor practical work, and silliness. There is inability to sustain attention and connected conversation. No further development takes place, but the memory and acquired mental proficiency may remain. The sensory sphere is affected. There may be headache and other unpleasant associations, as also disordered equilibrium and twitchings. The pupils often show some abnormality, and the tendon reflexes are often increased. There may be seizures, “ not very infrequently the first sign of the approaching disease.” Spasmodic phenomena and vasomotor disorders may also occur. Later, the mental processes undergo deterioration, the judgment is affected, and delusions occur. Verbigeration and stereotypism are in evidence.

Kraepelin‡ now groups cases into nine clinical forms, as follows :

* *Brain in Health and Disease*, Joseph Shaw Bolton, p. 320.

† *Dementia Præcox*, by Professor Emil Kraepelin. Translated by R. Mary Barclay, M.A., M.B., Edinburgh. E. and S. Livingstone, 1919, p. 74.

‡ *Idem*, p. 90.

1. Simple insidious dementia.
2. **Hebephrenia**, in which there is a condition of mental weakness developing into subacute disturbance.
3. Simple depressive or stuporous form.
4. States of depression with delusions.
5. Cases of greater excitement (agitated dementia præcox).
6. **Katatonias**, in which peculiar states of excitement are connected with stupor.
- 7, 8. **Paranoia**, the cases being divided according to whether they end in the usual terminal states of dementia præcox, or in paranoid, relatively hallucinatory, weakmindedness.
9. Cases with confusion of speech along with perfect sense and fairly reasonable activity.

The progress of the disease often extends over many years, and intermissions of considerable length may occur, giving rise to fallacious hopes of recovery. The prognosis is, however, unfavourable, though life itself is threatened only very slightly. In certain stages the resemblance to primary amentia, as regards weak will and judgment, childish conversation with tiresome reiteration of phrases, may lead to confusion in the diagnosis; but the statuesque postures, muscular rigidity, increased reflexes, hallucinations, and unemotional tendencies, will serve to differentiate true cases of dementia præcox, which, however, may occasionally supervene in the subject of primary amentia. A knowledge of the mental history in childhood and the existence of educational acquirements, which are not abrogated in the early stages of the dementia, will clear up the diagnosis.

Developmental Epilepsy and Epileptic Mental Degeneration.—Clouston lays down as an axiom that

“almost all cases of true epilepsy first arise during the growth and development of the brain.”* From birth up to the age of seven Gowers† found that out of 1,450 cases investigated, 340 (or 23 per cent.) arose during this period, and of these 77 (or 5 per cent.) during the first year of life. Between thirteen to eighteen, the period of puberty and early adolescence, 444 cases first occurred, about one-third of the whole. In the last seven years of adolescence (eighteen to twenty-five) 195 (only 13 per cent. of all the cases) occurred. Infancy, puberty, and early adolescence—periods of fastest brain growth and most rapid development—thus figure as the markedly epileptogenetic periods. Gowers and others have traced neuropathic heredity in from 28 to 35 per cent. of the cases noted. The “discharging lesion” of the motor cortex which Hughlings Jackson pointed out as the essential cause of epilepsy implies imperfect evolution of co-ordinating and inhibitory apparatus in the highest cortical levels, which we may consider in most cases to be an innate pathological condition. Epileptic nerve-storms occurring frequently produce more or less mental damage. The effect of epilepsy in childhood has been already considered (see p. 145). It remains to add that in puberty and adolescence mental enfeeblement of various degrees is frequently produced in those who begin to suffer at this period from oft-repeated convulsions or from the minor attacks known as “petit mal.” There are, however, exceptions, for such men as Julius Cæsar, Mahomet, Peter the Great, and Napoleon, are reputed to have been epileptics; but there is ample evidence that impairment of memory, judgment, and of

* *Op. cit.*, p. 97.

† Gowers' *Epilepsy*, first edition, p. 12.

mental activity generally, is apt to follow such attacks, and in extreme cases the previously intelligent youth may sink into a condition of progressive dementia, or develop the more active symptoms of epileptic insanity. The diagnosis of such cases is readily determined by the history; the prognosis is, with few exceptions, most unfavourable, especially when there is a neuropathic heredity.

It has been suggested that in some cases of so-called "moral imbecility" the periodical (and at first sight inexplicable) outbursts of evil conduct are due to epileptiform impulses, and cases have been recorded in which convulsions and criminal acts seemed to alternate with each other. Similarly, in cases of chronic alcoholism the bouts of drinking are sometimes regarded as epileptiform equivalents.

Pubertal Perversion of Moral Sense.—Apart from the more permanent forms of moral imbecility previously referred to,* one occasionally meets with cases in which the strain of puberty in its initial period produces, especially in those of neurotic antecedents, a temporary lapse or perversion of moral sense. A well-brought-up youth, previously of general average intelligence and integrity, may begin during the access of puberty to disregard the "proprieties," evolve hazy ideas of the distinction between *meum* and *tuum*, and go on to appropriate other people's goods, although possibly they may be of no service to himself. Starting with his own family the depredations may extend to outsiders, and a public exposure follow, greatly to the dismay of his relatives. In the lower ranks of society, he gets into the hands of the police, and the appropriate penal treatment puzzles the magistrate, who probably commits him

* See p. 160.

to a reformatory or industrial school. In the "upper classes" a doctor may be called in, who diagnoses **kleptomania**, and the youth remains in his friends' care, probably to relapse into similar peccadillos from time to time. If, however, he is withdrawn from his old surroundings and placed under the judicious care of a tactful tutor, who is able to secure his pupil's confidence and affection, and to interest him in outdoor employments and sports, a gradual rehabilitation of moral balance may be looked for as the initial stress of puberty subsides. We have, indeed, met with such cases in widely differing social ranks. Youths who have caused scandals at public schools, not only by pilfering from their school-fellows, but in one instance by appropriating articles from the masters' common room, and in another by forging the house-master's signature to a demand for money from his father's agent, have proved amenable to influences such as have been suggested above, and have eventually become useful and upright citizens. Girls, also, who in the general perturbation of budding womanhood have temporarily lost moral balance, descending, perhaps, to degraded habits and language, untruthfulness, and pilfering—*e.g.*, in one case from a servant's savings-box—have, under good management, retrieved their characters and grown up self-respecting and respected members of society. The prognosis of cases displaying moral delinquency for the first time at puberty is not necessarily unfavourable, but discrimination is needed as regards the family and personal history, which are not always given correctly. If instability can be traced from childhood, especially when there is a neurotic family history, the prospect of recovering proper moral tone is less

hopeful. It must be remembered that to certify any one as a moral imbecile under the Mental Deficiency Act some evidence of permanent mental defect existing "from an early age" is required, and also evidence that "punishment has had little or no deterrent effect."

Space does not permit us to enlarge upon the **hysterical affections** which may be taken as signs of mental weakness in the adolescent period, more especially of females. In such cases whimsical fancies and perverted emotional impulses, which may, perhaps, be regarded as reflex symptoms of inchoate uterine function, give rise to eccentricities of conduct which it may be difficult to differentiate from adolescent insanity save by their more transient character. In a case recorded by Clouston a young woman of twenty complained of "jumpings" all over her body, "cracklings" in the nerves of the abdominal region, and "emptinesses" in many places! Withal there was an exuberant religiosity, with an insensitiveness to ordinary moral obligations, such as dutiful behaviour towards her parents.*

In nervous affections which appear at first to be of an hysterical nature, and also when there is evidence of some organic lesion, the possibility of **encephalitis lethargica** must be borne in mind. In some cases the onset of this condition is extremely insidious, and sometimes the effects are slight and transient. Subsequently there may be some paralysis or hebetude, which clears up in time. Many cases of this affection, however, are very serious, and we can confirm the dictum of Professor E. S. Reynolds†

* *The Neuroses of Development*, p. 107.

† *Lancet*, October 23, 1920, p. 834. Presidential Address, Neurological Section, Royal Society of Medicine, on October 14, 1920.

that "not only may it be rapidly fatal, but its sequelæ may be most disabling and long lasting."

Insanity in Childhood.—Under this head we may very briefly consider symptoms which are sometimes passed over in early life until accentuated at puberty, but which point to something more than the ordinary negativistic characteristics of mental defect. Conditions indistinguishable from those of mania and of melancholia sometimes occur in the offspring of insane parents or grandparents long before puberty, though in some of these it is probable that there is a precocious development of the reproductive system. The nerve-storms to which some children with unstable minds are periodically subject may be properly classed as of the nature of maniacal insanity; and in other cases states of depression—of which instances are recorded at as early an age as six—deserve the name of melancholia. The prognosis is invariably grave, such cases often deteriorating under the stress of puberty or other crisis of life, and eventually gravitating into asylums for the insane.

Occasionally there are seen aberrant mental states of short duration, which may be classified as "*regression*." For instance, a girl on three or four occasions between the ages of thirteen and seventeen suddenly became like a little child again. She remembered nothing of her ordinary life, played with dolls and other childish toys, and used baby-language. After a few days the condition rapidly changed to the normal. Such states in late childhood or early adult life are often due to a sexual lapse.

Amongst **minor mental and moral changes** not infrequently noticed at this period may be mentioned lethargic conditions, asociability, causeless aversions, ill-temper, hyper-conscientiousness, religiosity,

and perverted sexual trains of thought with evil practices. These may pass away as the constitutional upheaval subsides, though in cases of neuropathic inheritance there is risk of permanent mental deterioration.

CHAPTER VII

MEDICAL EXAMINATION OF MENTALLY DEFECTIVE CHILDREN UNDER THE REGULATIONS OF THE BOARD OF EDUCATION

IN view of the relations subsisting between the Mental Deficiency Act—Sections 1 (1), 2 (2), and 31 (1)—and the Elementary Education Acts relating to defective and epileptic children, the Board of Education have issued a circular to Local Education Authorities, accompanying a scheme of **model arrangements** for ascertaining the existence of mental defect and its degree in children between the ages of seven and sixteen. The principal provisions are as follows:

1. The School Medical Officer, and such other duly qualified medical practitioners approved by the Board of Education as the Local Education Authority may approve for that purpose, will be Certifying Officers under the sections of both Acts.

2. Head-teachers and School Medical Officers are to report to the Local Education Authority all children appearing to fall under any of the sections cited of either of the Acts.

3. School Attendance Officers are also required to report the names and addresses of all children not in attendance at school who appear, or are alleged to be, defective within the meaning of the Mental Deficiency Act, 1913.

4. The Certifying Officer is to examine, under the

direction of the Education Authority, all such children so reported, and any child presented by its parent as requiring to be dealt with under the Elementary Education (Defective and Epileptic Children) Act, 1899. The child is to be examined within three months of attaining the age of seven years, and at such other times as the Authority may deem desirable.

5. A certificate in the prescribed form, together with a full report of the child on the lines of the schedule printed on pp. 192 and 193, is to be furnished to the Local Education Authority.

6. In the case of children of seven years or upwards, certified to be unfit for special schools in consequence of being idiots or imbeciles, copies of such certificate and report are to be furnished to the Local Authority under the Mental Deficiency Act, 1913. In any case of proposed notification to the Local Authority of a child not certified to be an idiot or imbecile, the Board of Education is to be furnished with a copy of the report, and the question whether or not the child shall be notified will, if they think fit, be determined by the Board.

7. In any case in which a defective child is certified as unfit to be instructed in a special school or class without detriment to the interests of the other children, otherwise than on the ground of being a moral imbecile (in which case he is to be notified to the Local Authority), a copy of the report of the Certifying Officer is to be furnished to the Board of Education, who will determine, if they think fit, whether or not the retention of the child in the special school or class is practicable.

8. The Local Education Authority is to arrange for re-examinations annually (at the least) of all pupils being educated in special schools or classes with a view

to ascertaining (a) fitness for transfer to ordinary elementary school; (b) incapability of further benefit from special instruction; (c) fitness for special school, without detriment to the interests of the other children.

9. Similar arrangements to apply to children maintained in special schools not belonging to the Authority.

10. If a child be certified as incapable of receiving further benefit from special instruction, the Local Education Authority will notify such child to the Local Authority under the Mental Deficiency Act, 1913, and send a copy of the certificate; but if the child be not certified as an idiot or imbecile, it will be necessary to furnish a copy of the report to the Board of Education, who will determine, if they think fit, as to notification to the Local Authority.

11. If the Local Education Authority decide that it is desirable that a child over seven years of age who is certified as capable of receiving benefit from special instruction should be dealt with by way of supervision or guardianship under the Mental Deficiency Act, 1913, they will notify the case and the circumstances thereof to the Board of Education; and if the Board certify that it is desirable that the child be placed under supervision or guardianship, the Local Education Authority will notify the child to the Local Authority under the Mental Deficiency Act, 1913.

12. The Local Education Authority will notify to the Local Authority under the Mental Deficiency Act, 1913, any child about to be withdrawn or discharged on or before attaining the age of sixteen, in whose case they are of opinion that it would be for his benefit that he should be sent to an institution or placed

under guardianship under the Mental Deficiency Act, 1913.

13. In any cases under Clauses 6, 7, or 10, in which the Local Education Authority, notwithstanding the certificate of the Certifying Officer, are opposed to the child being notified to the Local Authority, they may refer to the Board of Education to determine the question. They have a similar right if they wish to notify a child who has not been certified by the Medical Officer.

14. Where the Local Education Authority propose to notify to the Local Authority under the Mental Deficiency Act blind or deaf children, reports both from the Certifying Officer and the head-teacher of the blind or deaf school attended must be sent to the Board of Education, who, if they think fit, will determine as to notification.

From a consideration of the scheme above detailed, it will be seen that increased responsibility has been thrown upon the Medical Officers of special schools, and that the time required for their examinations has been considerably extended by the necessity of filling up voluminous reports, not only on children presented for admission, but also on those about to be withdrawn or discharged, or considered to be incapable of benefiting by further instruction.

The suggested form of report is substantially the same as that printed in Appendix C of the Annual Report of the Chief Medical Officer of the Board of Education for 1913.* The headings for inquiry relate to circumstances of environment, family and personal history, physical and mental conditions, and assessment of general intelligence in relation to

* See *Annual Report of the Chief Medical Officer of the Board of Education*, for 1913, Appendix C, p. 321.

age by means of the Binet-Simon tests. These tests, as explained in Chapter V., rest still upon a more or less empirical basis; but experience with them in France, Belgium, Germany, Denmark, and America, in addition to that in our own country, has shown that the results obtained in measuring the mental development of normal children at various ages are surprisingly accurate, and that their application to abnormal children reveals the degree of defect in them as compared with normal children of corresponding ages. If a child fails to pass the tests appropriate to his own age, but passes those for a child not more than three years younger than himself, he is, in Goddard's view, *backward* by one, two, or three years; but if he is more than three years backward he is *mentally defective*, provided he is not less than nine years of age. When under nine backwardness to the extent of two years or more constitutes mental defect. These tests do not, like ordinary educational tests, depend upon acquired attainment, nor even upon knowledge merely, but, in the words of Binet, "upon the ability to use knowledge in meeting a situation created by the standardised conditions of the test." They do not pretend to measure the entire mentality of the child, including the volitional and emotional elements, though information as to these may be incidentally gathered from the way in which the examination is faced. It is, of course, essential that the examiner should by his manner place the child at ease before applying the tests, and gain his confidence by pleasurable suggestions, such as offering to show attractive pictures and asking what he sees in them, rather than by plying him at once with a formal *questionnaire*. In fact, the less formality that is compatible

with a complete examination, the more satisfactory will be the results. Replies, however wide of the mark, must not be openly stigmatised as wrong; only words of encouragement should be used. Whilst the "standardised" form of questions presented should be strictly adhered to, in some cases it may require such explanation as may render it intelligible to the child—*e.g.*, in Question 1 for age eight it may be necessary to explain that the *difference* between two things means the points in which they are *not alike*. But no hints as to answers must be given by word or sign. Preconceived ideas of the child's abilities must be excluded from the mind of the examiner, whose correct attitude is, in Goddard's view, "to regard him as an unknown quantity, an x which is to be determined." This dictum cannot, however, be intended to imply that distracting bodily conditions (*e.g.*, toothache or headache) can be ignored; and in the case of mentally defective children it must be borne in mind that mental fatigue may be speedily induced by continuous questioning, so that it may be advisable in certain cases not to take the whole examination at one sitting. The tests of Binet and Simon, grouped according to age (as revised in 1911), are printed in Appendix C of the Chief Medical Officer's Report for 1913, pp. 323, 324, and will be found to differ slightly from the arrangement by Dr. Goddard previously referred to. As the Chief Medical Officer judiciously remarks (p. 214, *note*): "There is need for much research and co-operation in order to revise our mental tests and standardise them on various types of children. The Binet tests, which are recommended in the Board's schedule, are, it should be remembered, tentative, and not yet standardised for English use." It may

be pointed out that the Binet-Simon tests are valuable, not only in differentiating mentally defective children, but in grading them for class instruction, and also in gauging their capability of improvement. In prognosis the use of the Intelligence Quotient, as described in Chapter V., is of great help.

Those desiring a more complete knowledge of the subject are referred to Dr. Goddard's pamphlet; to Binet's papers, which will be found in successive numbers of *L'Année Psychologique*, from 1905 to 1911; to Dr. Drummond's authorised translation of Binet and Simon's *Mentally Defective Children* (London: Edward Arnold, 1914); and to Mr. Cyril Burt's revision as published in Dr. Ballard's recent book.* A summary of the tests based on Dr. Goddard's version published in Appendix F.

Whilst recognising the value of the Binet-Simon system judiciously used in conjunction with clinical methods and scientific scrutiny of the family history, we fully agree with the dictum of Dr. Walter E. Fernald, the experienced superintendent of the Massachusetts Institution, that "the determination of mental defect cannot be made by automatic application of any method and scale."† In the suggested form of report on children examined for mental deficiency, appended to the "Model Arrangements" issued by the Board of Education, information is required as to social surroundings, family and personal history, general physical conditions, including also the efficiency or otherwise of the special senses, the state of the nose and throat and of spinal reflexes, the existence of physical stigmata, etc. "In

* *Mental Tests*, by Philip Boswood Ballard, M.A., D.Litt. London: Hodder and Stoughton, Ltd., 1920.

† *Journal of Psycho-Asthenics*, vol. xviii., No. 2, p. 80.

assessing mental conditions, the tests designed by Binet and Simon are recommended," and in the course of their application observations may be made with regard to the activity or otherwise of such reactions of motor mechanism as are involved in the (1) formation and (2) storage of motor ideas; in (3) power of control, initiative, purpose, and concentration; (4) motor incompetence, as shown by attitude, gait, and general balance; (5) motor instability, as evidenced in uncouth habits; and (6) motor disturbance, under which are included—tremors, chorea, epilepsy, aphasia, and hemiplegia. Then come "reactions resulting from sensory stimulation," including—(1) Attention, as ascertained by the discrimination of colours, shape, size, and odours; (2) formation of memory images, as ascertained by (*a*) recognition, (*b*) recollection, of objects and sounds; (*c*) association of ideas; (*d*) judgment, as tested by appreciation of length, size and distance; (*e*) relationship, in comprehension of similarity, contrast, symbolism. Emotional conditions, as demonstrated by interest, excitement, aggression, co-operation, affection, etc., are to be observed and noted. Then follows a list of tests of intelligence based upon educational capacity, and finally an estimation of the will-power and moral characteristics. Upon the data so obtained a diagnosis is founded under nine categories, some of which may be correlated. Finally, "recommendations as to treatment" are to be made under the following headings of the class of instruction desirable:

1. An ordinary public elementary school.
2. A special class for dull and backward children.
3. A special school (day or residential).
4. Unsuitable for a special school.

Forms of certificate to meet the needs of the various classes diagnosed are prescribed by the Board as follows:

A. "I certify that this child is not incapable, by reason of mental defect, of receiving benefit from the instruction in an ordinary public elementary school."

B. "I certify that this child, not being merely dull or backward, and not being an idiot, an imbecile, or a moral imbecile, is feeble-minded within the meaning of the Mental Deficiency Act, 1913, but is not incapable, by reason of mental defect, of receiving benefit from instruction in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899."

C. "I certify that this child is incapable, by reason of mental defect, of receiving benefit from instruction in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899." "Note.—Under the last-named Act, idiots and imbeciles are excluded from special schools and classes certified under that Act."

D. "I certify that this child is incapable, by reason of mental defect, of receiving further benefit from instruction in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899."

E. "I certify that this child cannot be instructed in a special school or class under the Elementary Education (Defective and Epileptic Children) Act, 1899, without detriment to the interests of the other children."

Other forms of certificate are prescribed for epileptic, physically defective, blind, and deaf children; and there are also forms of recommendation to be employed by the Medical Officer when he is of opinion,

that a child in a special school should be dealt with under the Mental Deficiency Act, 1913, by way of supervision or guardianship, or, when about to be withdrawn or discharged, should be sent to an institution or placed under guardianship, in each case the reasons for such opinion being fully set forth.

With regard to the technique of examination, it may be noted that, in addition to appliances such as are needed in the medical inspection of ordinary schools—*e.g.*, weighing machine, height standard, and various instruments for ascertaining the general conditions, physical and sensorial, of the patient—it will be necessary to be provided with material for the Binet-Simon tests, which can be readily constructed or may be obtained in sets (as arranged by Dr. Goddard) from the C. H. Stœlting Company, 121, North Green Street, Chicago, Ill., U.S.A. In the Report for 1913 of the Chief Medical Officer, Board of Education (p. 214), the outfit of the psychiatric clinic of the school service at Stoke, as arranged by Dr. Robert Hughes, is noted as a model for Medical Officers engaged in similar work elsewhere.

With regard to special points in the model schedule, the following remarks may be found serviceable:

II. *Home Conditions* should be stated, if practicable, in terms of the rooms occupied and number in family. *School attendance* should be definitely ascertained as to date of commencement, regularity or otherwise of attendance, and type of school.

III. *Family History*.—As the statements of relatives are apt to be vague, particularly with regard to mental and nervous defects, great discrimination is required. The question of alcoholism is always a difficult one to deal with, and, unless notorious drunkenness exists this factor, in its less conspicuous manifestations, is

apt to be overlooked. Even present teetotalism is not always a guarantee against the existence of alcoholic excess in the past. The examiner must often be content with recording such information as the relative in attendance—usually the mother—deigns to give, and she is not likely to give evidence against herself. Such questions as, “Are you a beer or spirit drinker; and, if so, when do you take your drink?” may sometimes elicit suggestive information about drinking habits, but excess must not be too hastily assumed without reliable evidence; indeed, the utmost caution in stating in a document such as that prescribed by the Board of Education that alcoholism exists in a particular relative seems specially necessary unless conclusive proof is available.

The points to be noted under IV. *Personal History*, and under V. *Physical Conditions*, are so fully detailed in the schedule as to require no comment; but with regard to VI. *Mental Conditions* a few remarks may be hazarded. What, for instance, is meant (under VI. a. 3) by “execution of familiar complex movements”? The seven-years-old test in the Binet-Simon scheme would seem to supply an answer in the instruction to a child, which runs as follows: “Go and put this key on that chair. Then close the door. Then take the key which is lying on the chair near the door, and bring it to me. First put the key on the chair, then close the door, then bring the key to me.” Goddard places this test amongst those for six years of age, stating that at five years of age about half the number of (normal) children tested succeed: “at six all, or nearly all,” can accomplish this triple commission. Terman uses it a year earlier than Goddard, stating that statistics “show conclusively

that it is easy enough for year V.”* Most of the “reactions resulting from sensory stimulation” mentioned under VI. (b) are also ascertained in the course of applying Binet’s tests; and consequently it is a good plan to submit the child to these tests previous to filling up the items headed VI. *Mental Conditions*.

It cannot be denied that up to the present time children have found their way into special schools for defectives who are not the subjects of essential mental defect, though displaying a certain amount of mental abnormality as compared with ordinary school-children. In some cases, especially in young children, it is difficult to determine with certainty how far incapacity to benefit by the ordinary school curriculum is due to retarded development rather than to actual innate defect. In the differentiation between cases of “spurious” and real defectiveness, the Binet-Simon tests are serviceable, and, conventionally, a child of nine or upwards whose mental age is not more than three years behind his actual age may be considered *backward*, but a greater difference shows *mental defect*.† Apart from this, retarding causes may be discovered, such as bad environment, irregular school attendance, physical defects—especially adenoids, defective vision or hearing—and sometimes partial incapacities, such as inferior power of calculation with fair ability in other directions. In consequence of one or more of these conditions, those affected prove incapable of benefiting by elementary school instruction suitable

* *The Measurement of Intelligence*, by Lewis M. Terman. London: George G. Harrap and Co. 1919.

† *Mentally Defective Children*, Binet and Simon (Drummond’s translation), p. 16.

for the average child, and lag behind the educational standards appropriate to their age. In fact, ordinary school methods prove ineffectual for their improvement, and the question arises, especially when beyond the age for infant departments, What steps can be taken for their advancement? For such children the general establishment of **backward classes** or intermediate schools (as in the Mannheim educational system) becomes an urgent desideratum, the essential conditions being small classes, a larger proportion of physical and manual training in the curriculum, and such individual attention as the peculiarities of each case may require. In cases mentally backward owing to physical weakness, open-air schools, with their comparatively restful arrangements, often prove very beneficial. Unfortunately, "backward classes" are only to be found at present in about a dozen educational areas in England and Wales; and the result of want of appropriate provision elsewhere is that backward children are apt to gravitate to special schools (where they exist), as these are the only ones available by which they can benefit, though it is manifestly unjust to such children that they should be stamped with the stigma of mental defect. It would seem to be the duty of medical examiners to report, with regard to children of proved incapacity to benefit by instruction in the ordinary school from causes such as are mentioned above, that they need a modified curriculum, in the hope that educational authorities may see the desirability of establishing special classes for the dull and backward, in addition to those for the mentally defective. Dr. Kerr pointed out (L.C.C. Educational Reports, 1905-1906) fifteen years ago that a large percentage of children attending elementary schools in London, "although not actually

'mentally defective,' are yet of such a low grade mentally that they are neither capable nor worth the effort of being raised to the ordinary elementary school standard," and that for such simpler schools—the "intermediate schools" of the Mannheim educational system—were required, in which, so far as ordinary scholastic attainment is concerned, Standard IV. should be deemed sufficient; while objective teaching, with physical and manual training, should be the predominant element. The Chief Medical Officer of the Board of Education has consistently advocated in his Annual Reports the formation of "backward classes," and in his Reports for 1913 and 1917 considerable space is devoted to the discussion of the question. In the Report for 1917 he says: "From these considerations it will be clear that the educational problem awaiting solution affecting the so-called dull and backward child is of considerable magnitude and, numerically, far surpasses that of the mentally defective child."* He also suggests that in towns of moderate size, if suitable provision for dull or backward children were provided, "some of the 'mentally defective' children could quite appropriately be dealt with in association with these, while others of lower grade or with unsatisfactory home conditions could be dealt with at a special residential school."† In his Report for 1919 he states that: "By classifying 600,000 children in accordance with age and standard in elementary schools, Dr. A. E. Ikin, Director of Education at Blackpool, has estimated that 35 per cent. of the

* *Annual Report of the Chief Medical Officer of the Board of Education* for 1917, p. 101.

† *Ibid.*, p. 102.

children above seven years of age are backward.”* Pending the more general establishment of classes or centres for “intermediate” instruction, it seems inevitable that the resources of the “special school” should be utilised for certain “probationary” cases, with the safeguard of systematic scrutiny as to their fitness or otherwise for an ordinary school at periodical examinations.

Under the operation of the Elementary Education (Defective and Epileptic Children) Act of 1914, Local Education Authorities are charged with provision for the education of all mentally defective children, belonging to their area, over seven years of age, subject to consultation with the parents in each case as to their wishes and ability to make suitable provision. This proviso is an additional reason for increased care in classification, and calls for much tact as well as accuracy on the part of the medical examiner. As Section 6 makes it compulsory on the latter, if the parents so request, to consult with the head-teacher of the school previously attended by the child, it seems desirable that, in all cases in which the child has attended an elementary school, a careful written report by the head-teacher should be available at the examination and be duly considered.

* *Annual Report of the Chief Medical Officer of the Board of Education* for 1919, p. 136.

Overleaf will be found print of “Model Arrangements” (Schedule F), previously alluded to in this chapter.

“ MODEL ARRANGEMENTS ” (BOARD OF
EDUCATION CIRCULAR 829).

SCHEDULE F.

SUGGESTED FORM OF REPORT ON CHILD EXAMINED FOR
MENTAL DEFICIENCY.

- I. Name of Child (in full). Address. Date of Birth.
School (if any). Local Education Authority.
- II. Particulars of Home Conditions, Environment, School
Attendance, and other Factors.
- III. Family History (in regard to history of mental defect,
epilepsy, alcoholism, etc.).
- IV. Personal History: (a) Constitutional Defects, Injury at
Birth, Malnutrition, Rickets, Congenital Syphilis, etc.
(b) Diseases of Childhood. (c) Commencement of
Teething. (d) Walking. (e) Speech.
- V. Physical Conditions: (a) General (results of routine
medical inspection). (b) Special:—(1) Speech: De-
fective articulation. (2) Sight: Blindness, total or
partial, errors of refraction. (3) Hearing: Deaf-
mutism, partial deafness, partial mutism. (4) Nose
and throat: Enlarged tonsils, adenoids, mouth
breathing. (5) Control of spinal reflexes and of sali-
vation. (c) Stigmata:—(1) General retardation—
Cretinoid development. (2) Cranium—Microce-
phaly, hydrocephaly, asymmetry, rickets, imperfect
closure of fontanelles, simple head measurement.
(3) Hair—Double and treble vortices, wiry or supple.
(4) Face—Irrregularity of features. (5) Lower jaw
—Protruding or receding. (6) Eyes—Mongoloid,
presence of epicanthic fold. (7) Ears—Size, setting,
conformation, lateral symmetry, size of lobes, attach-
ment of lobe to the cheek, supernumerary lobules.
(8) Tongue—Enlarged, furrowed, papillæ enlarged.
(9) Teeth—Irregular, absent, enlarged incisors. (10)
Palate—Arched, narrow. (11) Fingers—Webbed,
clubbed, defective in number or shape, supernumer-
ary digits. (12) Limbs—Excessive length of upper
limbs.
- VI. Mental Conditions:

[N.B.—In assessing mental conditions, the tests
designed by Binet and Simon are recommended.]

(a) Reactions of Motor Mechanism:—(1) Forma-
tion of Motor Ideas. (Execution of simple move-
ments from imitation.) (2) Storage of Motor Ideas.

(Execution of simple familiar command by word of mouth.) (3) Power of control, initiative, purpose, and concentration. Success of motor output. (Execution of familiar complex movement.) (4) Motor Incompetence. Attitude in standing: position of head, spine, knees. Gait. Position of arms, hands, fingers, in horizontal extension. General balance. (5) Motor Instability. (Habits.) Rocking of body, rubbing hands, spitting, biting nails, or licking lips. (6) Motor Disturbance. Tremors (face, hand, tongue), Chorea, Epilepsy, Aphasia, Hemiplegia. (b) Reactions resulting from Sensory Stimulation:— (1) Attention—colour, shape, size, smell. (2) Formation of Memory Images: (a) Recognition; objects, sounds. (b) Recollection. (3) Association of Ideas. (4) Judgment (for example—length, size, distance). (5) Relationship (similarity, contrast, symbolism). (6) General concepts (possession, self-protection, purpose, concentration, initiative). (c) Emotional Conditions: Interest, excitement, aggression co-operation, affection, etc. (positive or negative phases). (d) Tests of Intelligence: (1) Description of pictures, models, objects, familiar events. (2) Letters, words, reading (word blindness). (3) Counting, manipulation of simple numbers, simple money values. (4) Writing. (5) Manual Tests. (e) Will Power as tested under the above headings. (f) Moral characteristics not recorded in (a) to (e).

VII. Diagnosis:—(a) Physically defective—stating defect. (b) Blind or partially blind. (c) Deaf-mute or semi-mute or semi-deaf. (d) Epileptic. (e) Merely dull or backward. (f) Mentally defective (feeble-minded). (g) Imbecile. (h) Moral Imbecile. (i) Idiot.

[In this group the symbols (a) to (i) are intended to be correlated when necessary.]

VIII. Treatment recommended. (With any necessary notes as to after-care, custody, and the degree and character of manual training and ordinary school teaching likely to be advisable.) (1) An ordinary public elementary school. (With or without particular supervision or modification of curriculum.) (2) A special class for dull or backward children. (3) A special school (state whether day or residential is recommended). (4) Unsuitable for a special school.

Signature of the Medical Officer—————

Date—————

CHAPTER VIII

THE TREATMENT OF MENTALLY DEFICIENT CHILDREN

(a) GENERAL. (b) MEDICAL. (c) SURGICAL.

THE treatment of mentally deficient children is essentially (to borrow a term from the French) *medico-pedagogic*. The physician, the teacher, and the nurse, must all co-operate, and the wise parent will secure the best interests of his afflicted child by placing him where the efforts of the three can be co-ordinated.

Congenital defect in the young infant having been diagnosed, are there any means available for modifying its accompanying abnormalities? Much, indeed, may be done by a loving mother, who will be patient enough to persevere, however slight the results, to promote sensorial development and co-ordinate movements, and, as months go on, to foster habits of cleanliness. The faculty of attention, too, may be cultivated, the child being coaxed to fix its gaze on one thing at a time. Music is often an aid; even idiots will respond in a remarkable way to congenial sounds, which they at length try to imitate, so that music is sometimes the stepping-stone to speech. Séguin has laid down the principles on which to proceed in the following paragraph:

“As soon as any function is set down as deficient at its due time of development, the cause must be

sought and combated; if external, removed; if seated in the nervous apparatus, counteracted by the earliest course of training and hygienic measures. The arm of the mother becomes a swing or a supporter; her hand a monitor or a compressor; her eye a stimulant or a director of the distracted look; the cradle is converted into a class-room or gymnasium."* It must, however, be remembered that the mother, if of neurotic temperament, is not the best person to conduct these infantile exercises. A judicious nurse, sympathetic, but not emotional, will have a better chance of success.

(A) GENERAL.—**Proper Feeding** is of the first importance. An emotional mother should not, as a rule, suckle her child. Instead judicious artificial feeding must be adopted. In the case of infants who give evidence of mental weakness by inability to suck, a spoon must be used, and great patience exercised. As the child gets older, well-boiled oatmeal porridge (*par excellence* the food for bone and brain building) should be given. Careful attention must be paid to the action of the bowels, which are apt to be sluggish, though sometimes there is a tendency to mucous flux. The **hygiene of the skin** must be studied, and frequent baths, with friction, are beneficial in promoting healthy cutaneous exhalation, otherwise often offensive, and in aiding the sluggish circulation. **Muscular activity** should be encouraged, and the child frequently laid on the "kicking-rug," and encouraged by playful methods to exercise its limbs. Fresh air is essential, and we unhesitatingly recommend the modern vogue of keeping the baby out of doors for the greater part of every day, asleep and awake, care of course

* *Idiocy*, p. 88. New York, 1866.

being taken to see that he is properly protected from the weather, and kept warm by hot-water bottles, if necessary.

Cleanly habits must be promoted. It is a mistake to condemn the defective infant to perpetual swaddling-clothes. The aim should be to approximate as near as is practicable to the normal child, in costume as well as other matters. Regularity in the relief of the bowels and the bladder should be inculcated early, more frequent facilities, of course, being required than for ordinary children; but, except in the case of degraded idiots, there is every prospect of cleanliness being attained by perseverance. The practice of wetting the bed is a common one with weak-minded people of all degrees; sometimes there is a physical weakness of the urinary apparatus, which may be corrected by appropriate treatment. More frequently, however, these *lâches* are the result of inattention, and then moral methods, in the way of simple rewards and punishments, may be tried. One very simple remedy, partaking both of the physical and moral, is the restriction of the amount of fluid imbibed towards bed-time, and mentally feeble children are often "thirsty souls." Raising the foot of the bed, and insuring that the child does not sleep on his back, are two household remedies sometimes efficacious. We do not approve of india-rubber urinals, and other mechanical arrangements, which only tend to perpetuate bad habits, any more than we do of the ingenious (?) method proposed by an Idiot Asylum Superintendent of keeping his beds clean by the nightly administration of enemata to all dirty patients. Belladonna is the drug on which most reliance is placed; sometimes small doses of thyroid are beneficial.

Psychotherapy may help some of the higher grade cases.

If the child has a tendency to **dribble**, efforts must be made to strengthen the muscles of the lips. Such exercises as holding a pencil transversely between the lips for a given time, and blowing whistles and trumpets, may be useful.

The **clothing** requires careful consideration. As with other children, it should be warm, yet light, and free from constricting bands, with easy-fitting knickerbockers. Woollen under-garments should be worn in all cases where practicable, but with wet cases there may be a difficulty as regards the nether garments; where frequent washing is necessary, swansdown or some such material may be used. Jaeger's natural wool in winter, and cellular cloth (the so-called "*Aertex*") in summer, form appropriate gradations as to warmth. With regard to the cut of the clothes, this should conform as nearly as may be to the ordinary fashion. It is wrong to accentuate personal peculiarities by peculiar clothing. There is no reason why boys of eight or more should continue to be dressed like girls, when kilted costumes or sailor suits would be quite as convenient, and, moreover, promote a sense of self-respect. Weak-minded children are often not devoid of all pride of appearance; this, judiciously cultivated, may be made a powerful lever in promoting good habits. We have known a case in which a tendency to destroy clothing has been overcome, not by attiring the child in sackcloth, but by providing for her a pretty costume.

Appropriate **exercise** occupies an important place in the general management. From the first, plenty of pure outdoor air is essential to the child whose

brain activity is diminished by the imperfect aeration of its blood; as time goes on, such muscular exercise as it is capable of should be promoted. From a false sense of shame the defective member of the family is too often carefully concealed from the public gaze. Teaching to walk will, of course, be a more tedious process than with ordinary children, but the faith which works by love may accomplish miracles, whereas neglect will too often entail permanent disability. Contractures of limbs, consequent on bad postures allowed to become permanent, are sometimes met with in the mentally feeble; and we have a vivid recollection of a poor boy of twelve who, having spent his childhood, like a modern Diogenes,* in a tub (a sugar hogshead), was brought to us with his legs so hopelessly deformed by his constrained posture that he was a complete cripple, though we afterwards succeeded in getting him to use a specially built tricycle.

The late J. Langdon-Down, in his Lettsomian Lectures† for 1887, laid stress on the prevalence of "morbid sexual erethism" in mentally deficient children of tender years, due oftentimes to the nefarious practices of an unworthy nurse. While this is not as frequent as some allege, the contingency must be borne in mind, and proper precautions taken.

The approach of puberty is an anxious epoch as regards domestic management, and too much care cannot be exercised by those in charge of "feeble-minded youths" (of both sexes) to guard against abuses of the animal instincts then awakened. Employment in the open air at this period will be of

* See Plate XIX.

† *Mental Affections in Childhood and Youth*, p. 47.

PLATE XIX.



J. L. ("DIOGENES")
(R.A.I.)

To face page 198.

special value; for obvious reasons, sending to bed in the day-time as a punishment must not be thought of.

(B) We now pass to methods in the treatment of the mentally deficient child, which we may more especially designate MEDICAL. We have already stated that a phthisical family history is common with mentally deficient children. We shall not, therefore, be surprised to find in them a marked **predisposition to tubercular disease**, sometimes affecting the joints, more often the lungs, and occasionally—though perhaps less frequently than would be anticipated—the meninges of the brain. Such causes of death formerly loomed large in the principal English institutions for defectives, accounting for at least 50 per cent. of the mortality of their inmates. Improved sanitary conditions, better ventilation and heating, and, above all, an increased open-air régime, have brought about a striking diminution in the tubercular death-rate. Thus, in his Annual Report on the Royal Eastern Counties Institution for 1912, Dr. Douglas Turner states that during the seven preceding years it had averaged only 9·2 per thousand, less by 35 per thousand than the average prevailing previous to that period. It must, however, be borne in mind that mental defectives as a class are unusually prone to the infection of tubercle. In all cases, therefore, it behoves the medical attendant to watch for, and guard against, signs of incipient tubercular disease, fortifying the constitution by open air, hygienic surroundings, judicious feeding, including a sufficiency of carbonaceous elements, and the administration of such medicaments as cod-liver oil, malt extract, and Parrish's chemical food. Children of the "Mongol" type are specially liable to break down from exposure, and in cold

weather are apt to suffer not only from chills externally, but from internal congestions favourable to the development of the tubercle bacillus. Tubercular affections of glands, eyelids, bones, and joints, frequently occur.

Mucous diarrhoea is a frequent ailment, especially with "Mongols," and calls for care as regards feeding, and for suitable medication. We have found much benefit in these cases from the administration of a mucilaginous mixture of castor-oil, with the addition of minute doses of opium. Sometimes small and repeated doses of grey powder or calomel are of service. Astringents, pure and simple, given too early, are apt to add to the intestinal irritation. The diet must be carefully regulated, any excess of carbohydrates being prohibited.

Epilepsy occurs in many weak-minded children, Dr. Sherlock* estimating a percentage of over 28 among 500 defective children at Darenth, and Mr. J. E. Middlemiss† giving 29 as the percentage in 200 cases examined by him at Leeds under the Mental Deficiency Act. The dietetic and medical treatment of epilepsy, therefore, is of much importance in dealing with the mental affections of youth, which it sometimes causes, and always tends to aggravate. Our experience leads us to lay stress upon the importance of a carefully regulated diet free from stimulating elements, milk food being a leading ingredient, with a restricted allowance of meat. All food must be thoroughly cooked and well masticated. To insure the latter condition, the

* Sherlock: *The Feeble-minded*. Macmillan and Co. London, 1912.

† "An Analysis of 200 Cases of Mental Defect," by J. E. Middlemiss. *Journal of Mental Science*, 1920.

services of a dentist are often required. Spratling* condemns the eating of pastry or cake in any form, also of small fruits containing hard seeds. All alcoholic drinks must be avoided, and only cocoa or *weak* tea and coffee given. Cucumber and cabbage should be avoided. When bromide is administered, table salt should be eliminated from the diet.

As regards drug treatment, while there is no question of the value of bromides in certain cases, there is considerable difference of opinion as to whether they should be adopted as a routine treatment for all and sundry, and also as to the amount of the dose. Dr. McCallum,† the Medical Officer of the School for Epileptic Boys at Starnthwaite, in Westmorland, is an enthusiastic advocate of the routine administration of bromide, and often in large doses. He gives 20 grains night and morning, and increases by 10 grains per day as long as fits occur. If necessary, he administers 100 or even 300 grains daily, but 80 grains is the average. His experience is that boys take 80 or 100 grains quite well, but that with 150 grains or more equilibrium is interfered with, and the patient must be kept in bed. He has excellent results to show in support of his system. At Lingfield,‡ where many of the children were said to present more or less mental defect, bromide was given in selected cases, and pushed if necessary. The results in these cases were very good, and in almost every instance the child's work and mental capacity improved. The statistics quoted by Dr. Aldren Turner in his book on epilepsy show that 50 per cent. of the cases treated

* *Epilepsy and its Treatment*, by William P. Spratling. Philadelphia, N.Y. London: W. B. Saunders and Co., 1904.

† *British Medical Journal*, March 14, 1908.

‡ *Ibid.*, June 1, 1907.

with bromide derive benefit—facts which, as he points out, go to disprove Dr. Spratling's contention that, if recovery takes place under the use of the bromides, it is in spite of, and not on account of, the drug. In our opinion, the idiosyncrasy of each case must be studied; while some are beneficially influenced by bromides, others will do best with borax or a mixture of the two. Dr. E. C. Séguin, of New York, advocated the addition of a small dose of chloral. It is well to remember the value sometimes of a combination of the bromides. Care, of course, must be taken that depressing effects are not produced. If *acne* occurs, the temporary administration of arsenic is useful. Bromide rashes are, however, relatively uncommon in persons of cleanly habits, and Dr. McCallum, of Starnthwaite, says there need be no fear of a rash if the best English bromide is used. He says that the only treatment ever necessary, if it does occur, is a soothing ointment, and that the bromide can be continued. Strontium bromide has been recommended as preferable to the potassium salt, but Dr. Aldren Turner states that he has not found it more valuable than the other bromides. He refers to favourable results obtained by the use of the combination of potassium bromide, arseniate of antimony, and picrotoxin, known as Gelineau's Dragées. Among other preparations of bromide, we have had favourable experience of *bromipin* (bromide and sesame-oil). It is quite as efficacious as the ordinary bromides, and is now made in special tablets, which children take readily. It is also useful for excitable children. Bromipin can be given hypodermically in the *status epilepticus* without fear of abscess, and is not a gastro-intestinal irritant, the sesame-oil with which it is made up being a simple

emollient. The late Dr. Andriezen* spoke highly of a combination of antipyrin (5 grains) with ammonium bromide (15 grains) as “promoting a degree of mental brightness.” In debilitated cases, the glycerophosphates form a valuable combination with the bromides. Calcium lactate is sometimes useful. If there be a syphilitic element in the causation of the epilepsy, bichloride of mercury, combined with bark, may be of benefit, or the ordinary grey powder, or treatment by inunction. Salvarsan and neo-salvarsan have been satisfactorily employed; their injection, however, is difficult and dangerous in babies, who are very liable to choroiditis, and as a rule respond well to mercury.

In cases in which epileptic attacks are due to hypopituitarism attributable to injury of the pituitary gland in fracture of the base of the skull, or pathological conditions occurring in the Sella Turcica, good results have been reported by Dr. Harvey Cushing and Dr. George C. Johnston from the administration of pituitary extract. The diagnosis of such cases may be made by an X-ray examination, as described in Chapter IV. on page 67 (see also Plates XIV. and XV.). It may be interesting to remark in regard to the cranial skiagrams there reproduced that they were taken from a girl of three who, after a difficult birth, suffered daily from epileptiform attacks up to the morning on which she was subjected to anæsthesia of nearly half-an-hour's duration during the application of the X rays, and that from that time onwards—at least for over a year—she had no further recurrence of her fits.

The *auto-intoxication* theory of the origin of epileptic seizures has not been proved; it may hold good in

* *British Medical Journal*, September 16, 1899, p. 713.

a small minority of cases, and, at any rate, often aggravates the condition, even when the real cause is to be sought elsewhere. Attention to the eliminating channels is, therefore, essential. The periodical administration of calomel and other intestinal antiseptics is often beneficial. It is to this view of the origin of epilepsy that the drugs *bromaline* (bromine and formaldehyde derivatives) and *bromocarpine* (bromine and pilocarpine) owe their introduction.

In *petit mal*, which is, perhaps, more often associated with mental enfeeblement than *grand mal*, and has a less hopeful prognosis, E. C. Séguin reported well of "combining with a very moderate bromide course the free use of strychnine and atropine or belladonna."* Occasionally small doses of thyroid extract are beneficial in these cases.

More important than drug treatment is what one may call the "**outdoor occupation cure.**" The experience of the Royal Albert Institution, and more recently of the various epileptic colonies, is emphatic in this direction. Mere loafing in the open air is of very little benefit. Occupation is the predominant factor for good.

In recent years some psychologists have asserted that epilepsy should be viewed more from the psychic standpoint, and have suggested that in cases where the condition has been attributed to a fall on the head or other injury the chief cause of mental disturbance has been the fright in falling rather than the physical shock. It has been suggested that psychotherapy may cure a psychic case of epilepsy, and reduce the number of seizures even in the organic cases. There are, no doubt, possibilities on

* "Treatment and Management of Neuroses," *New York Medical Journal*, May, 1890, p. 31.

these lines, particularly as regards reducing the number of seizures, but our experience has been that the number of cases which are entirely psychic in origin are extremely small, and that in many cases said to have such an origin the fright or other emotional disturbance was simply the last straw which precipitated the first attack of organic epilepsy, or was merely a coincidence. In making this statement we have in view cases treated by various psychotherapeutic methods. The science of psychotherapy is still, however, so much in its infancy that much more experience and investigation is required before any definite decision can be given.

It must be realised that at the most psychotherapy can only cure the epilepsy, and not the underlying mental defect, the degree even of which it cannot affect. All the same, a knowledge of psychotherapy is invaluable in dealing with defectives, because it gives an insight into some of their troubles and difficulties, and a guidance in handling them which can be obtained in no other way. We have seen investigations on psychic lines benefit high-grade cases in institutions who complained that no one seemed to understand them or sympathise with them. As a means of treatment suggestion is available for those whose attention can be concentrated sufficiently, and is seldom contra-indicated because the defective can never hope to attain normal development, and may therefore be treated with authority. Various forms of analysis are also useful, and are easier than in the normal because the defective is incapable of any deep emotion, and has very limited associations of ideas. In these cases the limited possibilities must be kept in mind, because there is little doubt that in some cases of shell-shock much

time and energy have been expended by psychotherapeutic enthusiasts who had overlooked the fact that the chief cause of trouble was innate defect of mind.

The most striking advance in the medical treatment of mental defect combined with bodily defect is that of **sporadic cretinism**. Up to the year 1890, this was thought to be a hopeless form of idiocy; but the experimental researches of Victor Horsley and others encouraged the view that benefit might be derived from the implantation of the thyroid gland of the sheep in such cases. Subsequently it was found that the injection of thyroid juice was of equal efficacy, and later that the ingestion by the mouth of the gland itself, or its preparations, was the best and most efficient mode of treatment. Thyroid grafting—a method of treatment which went out of vogue—was suggested afresh by Victor Horsley as the most desirable method, because it is permanent and avoids the continued administration of thyroid extract. When thyroid extract is administered, mental awakening proceeds *pari passu* with physical development in a manner almost startling. The adjustment and regulation of the dose appropriate to each case, so as to avoid cardiac or stomach irritation, excessive temperature, and undue emaciation, are the points calling for attention. Experience has shown that individual tolerance varies considerably, and that the initial dose should be small. Thus in children of five years and upwards a daily 1-grain dose of standardized extract may be tried, and this cautiously advanced to $2\frac{1}{2}$ grains (in divided doses) if found to agree, an increase of an additional grain for each year of age being subsequently made. In most cases a daily maximum dose of 5 grains

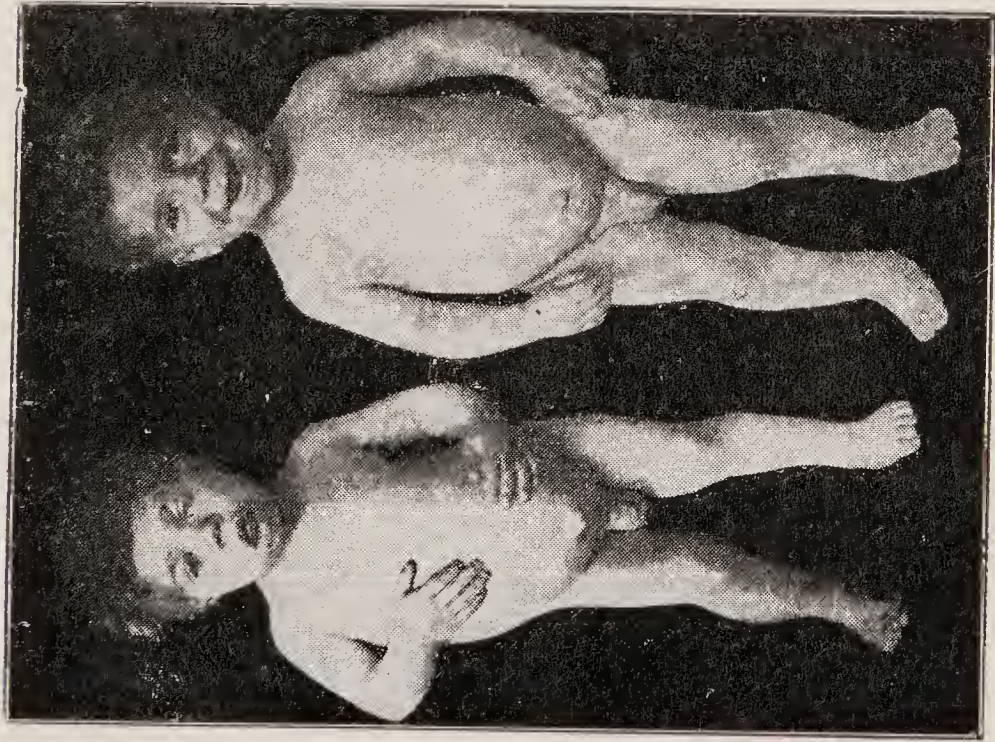


FIG. 1.—D. AND G. B. (BROTHERS), AGED
9 AND 14 RESPECTIVELY.



FIG. 2.—D. AND G. B. (BROTHERS), AGED
11 AND 16 RESPECTIVELY.

SPORADIC CRETINS.

(BEFORE AND AFTER TREATMENT.)

PLATE XXI.



CASES SHOWN IN PLATE XX. AFTER TEN YEARS'
CONTINUED TREATMENT.

G. and D. B., aged 24 and 19 respectively ; younger brother
9 inches taller than the elder.

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will suffice, but the treatment (though in modified doses) must be permanent to avoid retrogression. The annexed Plate XX., for which we are indebted to the courtesy of Drs. Railton and Telford-Smith, shows the condition before and after treatment of two brothers, one of whom was formerly under Dr. Shuttleworth's care at Lancaster, while Plate XXI. depicts their ultimate condition. It is most unlikely, however, that a cretin will ever become quite normal; some leeway in development must necessarily be looked for.

There is little doubt that mental defect is sometimes due to, or associated with, failure of endocrine glands other than the thyroid. The administration of other glands, however, has seldom met with much success, partly, no doubt, because we are not yet in a position to provide them in a form readily assimilated. Here again we would say that although we believe true mental defect cannot be removed after birth, yet further experimentation is desirable, especially as in defectives, just as with the normal, many disturbances of function at least are amenable to organotherapy. Some of the optimistic accounts of the disappearance of mental defect after the administration of organic extracts must be accepted with caution. Any endocrine failure may, of course, be associated with or actually cause an arrest of development, or even a regression. Accounts of cures of mental defect to be entirely convincing must contain definite statements about the mental age, as estimated by an expert, at various stages before and after treatment. The suggestion that maternal medication during pregnancy by endocrine substances may be helpful when there is a reasonable apprehension of unsatisfactory gestation is worthy of

consideration. It must be remembered that the damage is usually effected some time before birth, perhaps in the first month of foetal life.

The majority of mentally deficient children being of feeble constitution, the prognosis of the **exanthemata**, and of acute disease generally, must be guarded, while depressing treatment is inadmissible. Cerebral complications are frequent, and convulsions not uncommon. Troublesome sequelæ affecting mucous membranes (in the eyelids and elsewhere) are apt to occur after measles, which, in our experience, is a disease almost as formidable as scarlatina among defectives. The irritability of mucous membranes is at all times a source of trouble, and catarrhal discharges from the eyes, nose, and ears have to be treated with astringent lotions. **Spongy gums, aphthous patches and parasitic diseases of the skin** must be treated by appropriate remedies. Curious **skin affections** of neurotic origin are sometimes met with in cases of mental feebleness, such as that described by Dr. Pringle and others under the name of "Adenoma sebaceum,"* and now recognised, as we have described in Chapter IV., as part of a clinical entity designated "tuberous sclerosis" or "epiloia."

(C) A few remarks as to **SURGICAL** treatment in relation to mentally deficient children must close this chapter. Contractures of limbs may sometimes be remedied by tenotomy, but the deficiency of reparative power, and the difficulty found—at any rate, with low-grade cases—in keeping appliances in position and free from filth, must be borne in mind, before undertaking a surgical operation. We cannot, therefore, give mentally deficient children the full benefit of modern surgery in the treatment of

* *British Journal of Dermatology*, January, 1890.

paralysis, especially as, to insure success, the after-treatment must be prolonged. Indeed, Sir Robert Jones,* of Liverpool, has placed many of these unfortunate children “in a group outside remedial art.” For the relief of constitutional disturbance, however, such as that caused by bone or joint disease in tubercular cases, operative interference is justifiable and generally successful. We have repeatedly seen considerable benefit to mental activity from the clearing away of post-nasal adenoid vegetations in feeble-minded children.

About 1890 the operation of **craniectomy**—i.e., the cutting of strips of bone from the cranium—was recommended in cases of microcephalus. This practice has, however, been abandoned, owing to the disappointing results, and the knowledge that the small skull is simply moulded to the brain, the development of which has been arrested at the fifth month of intra-uterine life.† When signs of pressure are seen, however, as in oxycephaly, and in the rare cases in which there is a history of prematurely ossified fontanelles, operative interference may be justifiable. In Chapter IV. we have explained the advantage of draining the subarachnoid cisterns in cases of **status epilepticus** due to a localised meningitis serosa externa. Beneficial results have been frequently obtained by cranial operations in cases

* *On Certain Principles and Methods in the Surgical Treatment of the Paralysis of Children*, by Robert Jones, 1902.

† See article by Dr. Shuttleworth, *Medical Annual*, 1895, p. 327. Dr. Telford-Smith has described and illustrated, in the *American Journal of Psycho-Asthenics* for June, 1897, the cases of two microcephalic boys whom he had the opportunity of closely observing during four years after craniectomy had been performed, his conclusion being that in the light of results the operation is unjustifiable.

of mental deficiency associated with traumatism, epilepsy, and paralysis; in such cases surgery should not be deferred until after the establishment of serious atrophic changes and degenerations. The diagnosis of abnormal cranial conditions, which may give rise to prejudicial irritation of subjacent tissues, is facilitated by radiography, skiagrams demonstrating the cranial outlines being now available.

CHAPTER IX

EDUCATIONAL TRAINING

WE now pass to the consideration of means which, as distinguished from general treatment, we may designate **Educational**. Under this term we include all those methodical and specific exercises, whether physical or mental, which naturally fall into the school routine, and need for their direction a skilled teacher acting in concert with the physician. The kind and amount of educational exercise appropriate to a particular case of mental deficiency or feebleness should indeed be prescribed by the latter, and consequently a cursory sketch of the teaching *technique* adapted to characteristic varieties may not be out of place in what aspires to be essentially a medical work. As a matter of convenience, industrial and moral training, though forming integral portions of the educational scheme, will be considered in subsequent chapters.

In dividing educational means into (a) **physical** (those more particularly addressed to the body) and (b) **mental** (those more particularly addressed to the intelligence), we must bear in mind that the two are not independent of each other though, as Séguin points out, with regard to mentally deficient children especially, "the physiological education of the senses must precede the psychical education of the mind."* We may add that the training of the muscular system to ready and regulated response is merely an extension

* Séguin, *New Facts*, etc., p. 41. New York, 1870.

of sensorial training, and both these processes naturally precede, and prepare the way for, more purely intellectual training. The mentally feeble child is particularly incapable of comprehending abstractions: all instruction, therefore, must be presented to it in a concrete form, which it can not only see, but, when possible, grasp in the hand as well as in the mind. Many of the "games" and "occupations" of the kindergarten are consequently of service, but whereas the normal child exercises its own spontaneous activity through these occupations, those who are mentally deficient, especially those of the apathetic type, have to be stimulated to action by the force of imitation. Our system of education, then, starts on physiological lines, first addressing itself to the **culture of the external senses**, then to the **co-ordination of muscular movement**, and finally to the promotion, by imitative and other exercises, both of the **manual and mental activities**.

While accepting these general principles of procedure, it must not be imagined that all cases can be treated in the same way. On the contrary, it is essential to success that the teacher should study the individual peculiarities of each case, and adapt the educational methods employed to those peculiarities. Mentally abnormal children may be broadly divided into two main groups: (1) those who are **dull and apathetic**; (2) those whose **nervous and mental action is irregular**. It is obvious that the rousing, stimulating *régime* suitable for the former is not that most appropriate to the latter, in whom the inhibitory and co-ordinating functions require to be strengthened by exercise. In both, however, the pupil's own will-power is a factor and must be influenced in the one direction or the other.

As extreme examples of the first group we have the "impassive, low-grade idiot, whose education begins with a bombardment of bean-bags. Such a child is so inert at first as not to put up its hands to protect its face from the bean-bag thrown at it by the teacher: gradually, however, the instinct of self-preservation asserts itself so far as to ward off the missile. The second step, to catch the bag, and the third, to throw it back to the teacher, mark successive steps of improving mental activity; and from these progress is made in the direction of simple drill, aided by music."* The bean-bags referred to are about 5 inches square, made of bright-coloured flannel, and loosely filled with beans or rice, so that their impact is not hurtful. The same sort of exercise varied by aiming the bags so as to pass through round or square holes in a board, or into the mouth of a grotesque figure, is excellent for promoting quickness of the eye and hand, as well as concentrating attention, in higher-grade children.

Amongst children of the second group we include those with evidences of an over-mobile nervous system, or with uniform repetitive movements, such as those designated *athetosis*. The golden rule in these cases is—try to substitute, in place of purposeless, irregular movements, motor exercises with a definite purpose that call for will-power. In this way inability to fix the attention (*aprosexia*, as this defect has been called) is gradually overcome, and the moral satisfaction resulting from "something attempted, something done," encourages fresh efforts. In cases where nervous irritability is so great as to give rise

* See paper by Shuttleworth, "On Points Connected with the Education of Feeble-minded Children," *British Medical Journal*, September 8, 1894.

to destructive tendencies, the irregular energy should be turned into constructive channels; thus a child of this temperament may be coaxed to build up wooden bricks into some definite form for the pleasure of knocking them down with a crash! Gradually he may be led on to practise building for its own sake. The child with incessant movements of his fingers (*athetosis*) is usually not greatly wanting in will-power, and it is marvellous how much may be achieved by appropriate finger exercises (such as those of the

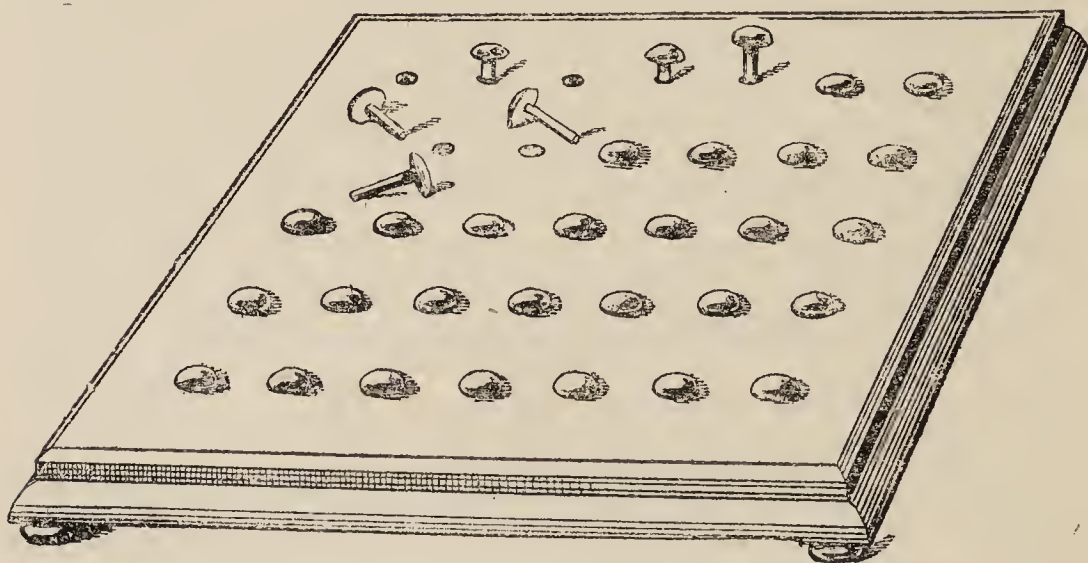


FIG. 4.—PEG-BOARD.

peg-board, see Fig. 4), or the more interesting kindergarten occupation of “picture perforating.” The intelligent teacher will know how to adopt, and adapt to the use of the deficient child, simple educational means, such as those practised in our infant schools. It must, however, be borne in mind that much that the normal child learns intuitively has to be taught specifically to the abnormal. The external senses are often inactive, if not structurally defective, and it will be necessary to open up, by a series of sensorial exercises, these obstructed avenues of approach to

the central intelligence. Then the due co-ordination of muscular movement must be strengthened and regulated by judicious drill. Finally, the general intelligence must be cultivated by interesting the child in its surroundings, and breaking down the isolation in which the solitary idiot, and to a less extent the mentally feeble child, carry on their existence. All this preliminary work of necessity precedes instruction in the three "R's" and what we are accustomed to regard as ordinary school-work. We rejoice, however, to find that the physiological sequence we have indicated, and which was laid down by Séguin over seventy years ago as *the* educational mode for defective children (as well as for others), is gradually being recognised in the curriculum of elementary school. We do not venture to trespass upon the domain of pedagogy farther than to point out the special methods of instruction indicated to meet the special requirements of pupils who, by reason of mental defect (often associated with physical), cannot "properly be taught in the ordinary standards or by ordinary methods."

And first with regard to **sensorial training**, it will be convenient to consider separately the several senses, though in practice the training will be of a composite character.

The **tactile function** is not only the most general, but in some respects the most important of our senses, and in the normal baby its evolution takes precedence of the rest. Impressions through the eye and ear are criticised through the sense of touch, and this natural development, so serviceable in the spontaneous education of all healthy young animals, must be imitated in our endeavours to bring up towards the normal standard the sensorial training of imperfect children.

In some cases we shall find coarse, insensitive hands which must be drilled into sensibility by grasping hard and soft objects, and discriminating the resistance and surface impressions of such varying substances as polished marble, sand-paper, velvet, silk, etc. Sensibility to heat and cold may be gauged and cultivated by the handling of bottles filled with water of varying degrees of temperature. Such lessons will, of course, form incidents of the object-lessons which play so important a part in early education. In some exceptional cases there is a morbid sensibility (*hyperæsthesia*), which is best counteracted by friction against hard substances, and the employment of the fingers in coarse work.

In order to test and exercise tactual impressions apart from those derived from the sense of sight, Séguin recommended that the patient should be placed in a darkened room. The same object is accomplished in the Montessori method by blindfolding the child engaged in tactual discrimination of surfaces and objects. In the case of mentally deficient children, however, there is risk, as Dr. Montessori remarks, that the attention may be diverted to the bandage itself, or that the darkened room may produce a condition of lethargy or disorder interfering with the tactual exercise.

The use of the **peg-board** (Fig. 4) has already been mentioned as serviceable in cases of *athetosis* (spasmodic finger movements): it is also valuable in cultivating the tactile sense. Similarly, **size- and form-boards** (Figs. 5 and 6, p. 219) promote accuracy not only of grasping movements, but of capacity for adjustment of insets to their appropriate cavities; and a pin-cushion covered with spotted material, into the spots of which the child sticks pins, is useful in exercising

minute sensation, as well as fine adjustment of the muscles. Threading large coloured beads and buttons serves not only as an exercise of tactile sense, but, as will afterwards be pointed out, of the arithmetical faculty.

The appliances illustrated on pp. 219, 220 were designed over sixty years ago by Séguin for use in American institutions for the feeble-minded, and with slight modifications have formed part of the school equipment for such institutions on both continents ever since. Of recent years similar but more elaborate appliances have been devised by Dr. Maria Montessori for use, not only by defective children, but as aids to the auto-education of normal infants, and are on sale under the designation of "Didactic Apparatus for use with the Montessori System of Education."* The Dottoressa acknowledges in her classic work (*The Montessori Method*), published in English in 1912, her obligations to Séguin and his didactic apparatus, which she has skilfully systematised and extended. She justly lays stress upon the *spirituality* (or intelligent and sympathetic spirit) in which the apparatus must be used, which is, indeed, of more importance than the precise form of its construction. It may perhaps be open to question whether some of the modifications introduced by her are improvements on Séguin's devices. Thus the little knobs added for lifting the "geometrical insets" detract from their utility as a grasping exercise afforded by the size- and form-boards above illustrated. The grooves in Séguin's "graduated rods" (Fig. 7) have advantages as compared with the "long-stair" of the Montessori system, inasmuch as the former exercise the tactual as well as the visual sense.

* A list of these appliances may be obtained from Messrs. Philip and Tacey, Ltd., 142, High Holborn, W.C.

The sense of **sight** comes next in importance to that of touch, as regards training. Ocular defects must, of course, be treated by the ophthalmic surgeon, and in errors of refraction correcting glasses supplied; the teacher's function is to concentrate the wandering gaze, to specialise the vacant stare of the defective pupil. To quote a quaint Gallicism of Séguin's, "The main instrument in fixing the regard is the regard"—that is to say, the vagrant eye of the pupil may be brought to attention by the fixed gaze of the instructor. Glittering objects, such as the silvered globes used for Christmas-trees, are serviceable also for this purpose, especially with very young children, and the kaleidoscope is an attractive toy of distinct educational value for older ones. The independent movements of the eyeball, apart from those of the head, should be called into play; the training of the ocular muscles is too often neglected, with the result that the child's lateral range of vision is unduly restricted. Discrimination of colour is a later exercise of the visual organ; and for this purpose discs of various colours for the child to match, cubes, the sides of which are vari-coloured and are successively turned uppermost, following the lead of the teacher, and a series of cups and balls, to be fitted together in corresponding colours, are useful aids. But perhaps more interesting to the juvenile mind is the matching of coloured ribbons and articles of clothing, or pointing out corresponding hues in coloured pictures. Exercises in colour perception naturally lead to the distinguishing of colours by name, but the former take precedence in sensorial training. The teacher or nurse should not therefore commence by asking the child *which* is red, blue, etc., but the colour sense should be exercised by getting

the child to sort into separate heaps the several discs or pieces of coloured cardboard. Matching

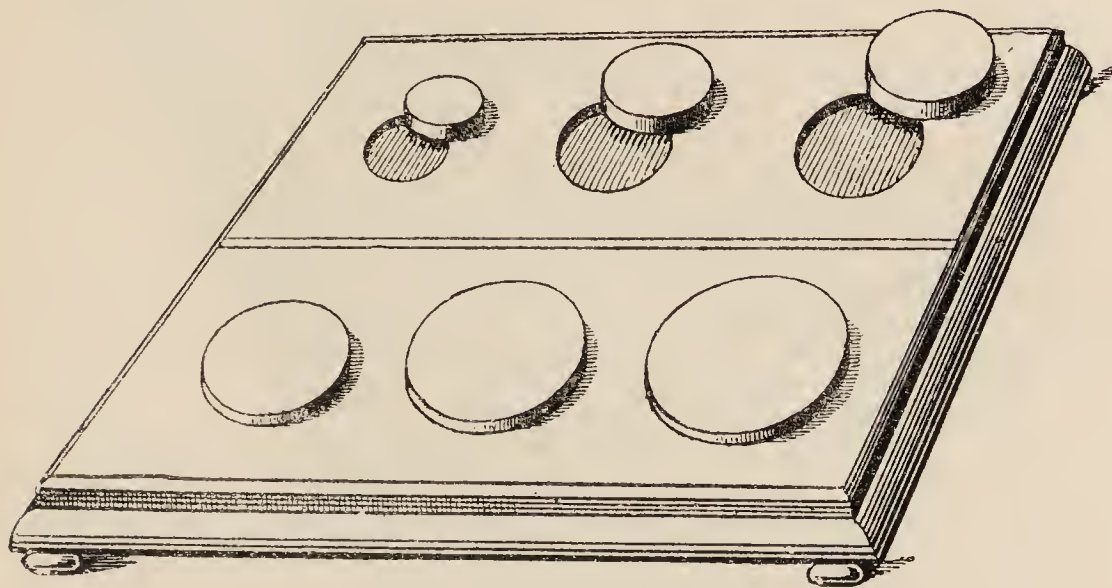


FIG. 5.—SIZE-BOARD.

coloured wools, and finding cards corresponding in colour to the squares on the colour chart, are other

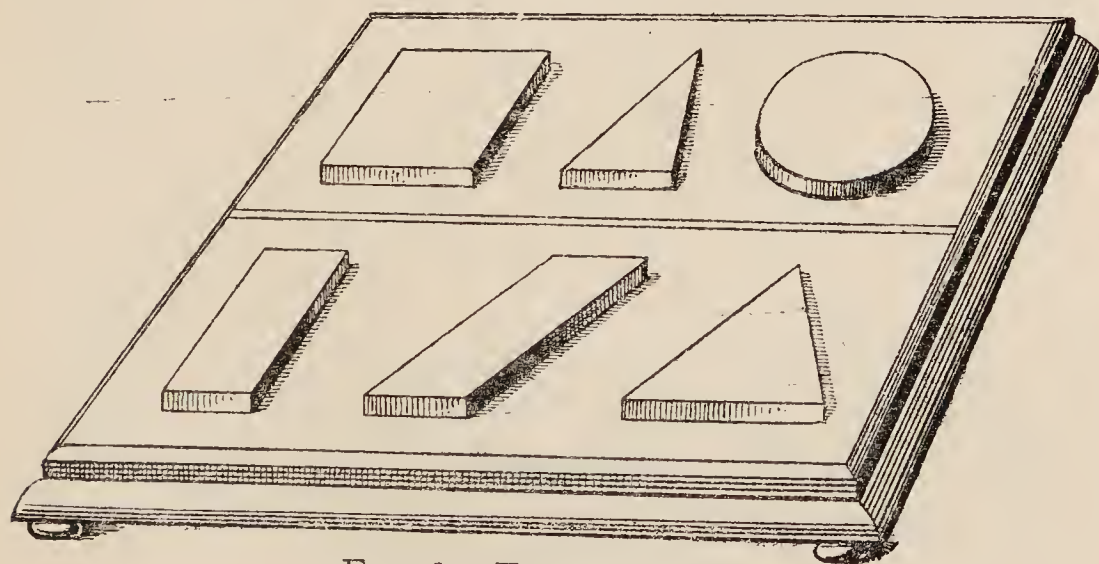


FIG. 6.—FORM-BOARD.

useful exercises. Forming pictures from picture cubes is a more advanced form of eye training, and the use of **size- and form-boards** (Figs. 5 and 6), and

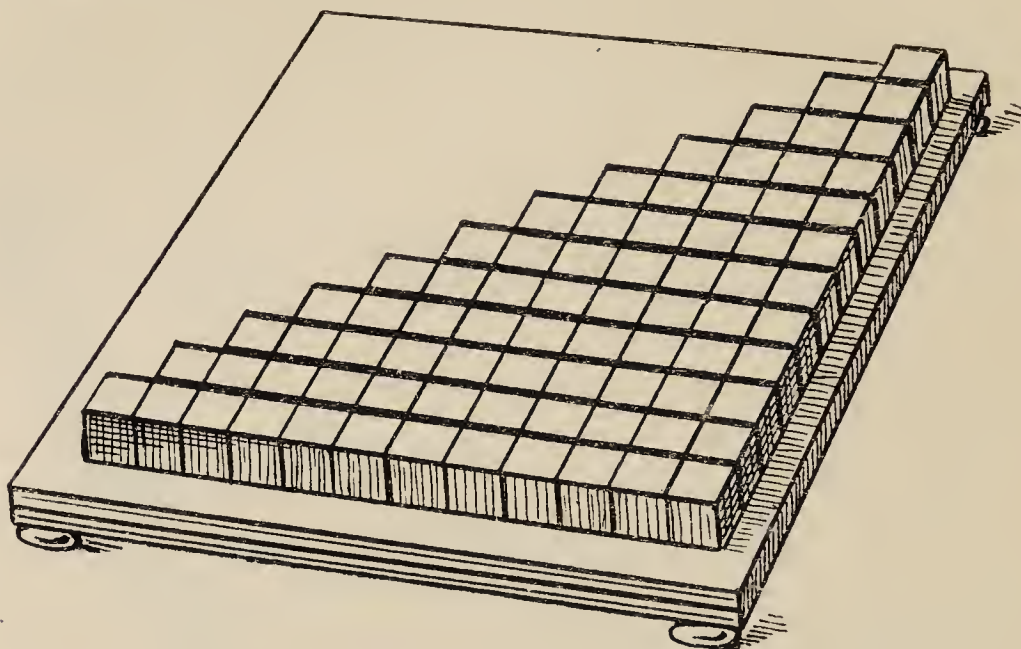


FIG. 7.—GRADUATED WOODEN RODS.

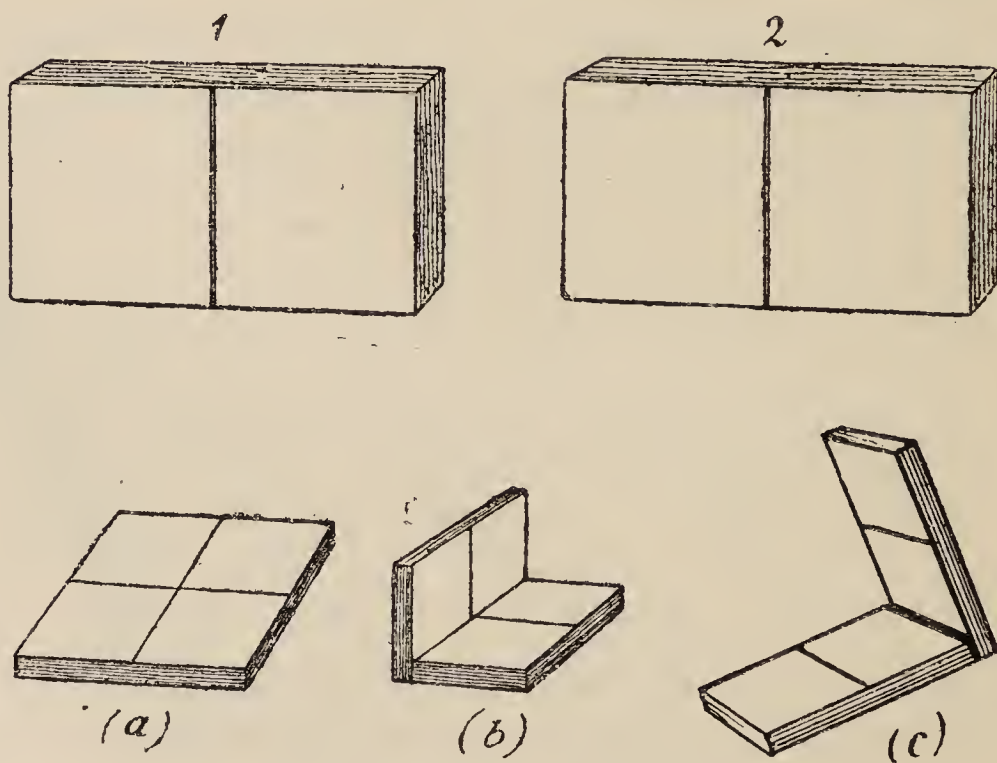


FIG. 8.—DOMINO-BOARDS.

of the **graduated wooden rods**, to be arranged in step-like series (Fig. 7), exercises both hand and eye, and imparts ideas of form and dimension. Ideas of rela-

tion are similarly imparted by exercises with **domino-boards** (Fig. 8), two of which are placed (*a*) flat, side by side; (*b*) at right angles, laterally; and (*c*) at right angles, end to end, following the lead of the teacher.

Taste and smell, being essentially animal rather than intellectual senses, do not as a rule require much stimulation in the mentally deficient class.* But discrimination may be exercised by offering to the pupil substances of similar appearance such as salt and white sugar, to be distinguished by taste; or ground coffee and snuff, to be distinguished by smell.

Hearing sometimes appears to be deficient when the real defect is that of attention. Mentally feeble children often hear perfectly well, but do not take the trouble to listen; they may, however, be coaxed to do so by presenting to them agreeable sounds. Fortunately, music has for this class special charms, and a simple song will often enlist attention when mere speech is disregarded. Nursery ditties are consequently not without educational value, and, as we shall see later, often form stepping-stones to speech. Tone-deafness is sometimes met with, and if low-pitched sounds are not apprehended, those that are more shrill (such as those produced by the whistle) should be tried. At a later stage the discrimination by pupils of the different quality of sounds produced by different instruments is a good exercise.

Speech is a complex function, having important relations to auditory perceptions on the one side,

* Perverted and abnormal states of these senses are occasionally met with in idiots; we have known one whose peculiar "taste for literature" was manifested by his "devouring his book," cover and all; and another who distinguished his own and his comrades' clothes solely by the sense of smell.

and on the other being dependent upon the integrity of nerve centres and tracts, and the due co-ordination of the muscular apparatus concerned in vocalisation and articulation. The relations of speech to intelligence must, indeed, be borne in mind, paucity of ideas being in most cases primarily responsible for poor development of spoken language. But even when some power of ideation and expression has been attained, more or less imperfection of speech is extremely common with mentally deficient children, and when not the result of want of development or lesion of the cerebral speech-centres, much may be done in the way of amelioration by appropriate training. Excluding cases dependent on deafness—in which lip-imitation methods are of much value, and the “oral method” has a literature of its own*—we may say that as a rule such children require to be taught to speak much as a baby learns to speak. In some cases, however, a course of lip and tongue gymnastics is an essential preliminary. The pupil may be unable to bring the lips or teeth together, or to direct the tongue as required for the formation of a sound. In such cases special exercises adapted to the particular infirmity are requisite. To improve the power of closing the lips, a flat piece of boxwood, an ordinary penholder-stick, or a bone ring, may be held by the child between his lips for a few minutes at a time; this is an exercise useful in repressing slaverling, especially if at the same time the head is kept erect instead of bent forward. Blowing a whistle is also of service, and puffing into motion a pellet of paper or a flake of cotton-wool helps in the power of pursing up the lips necessary for

* *E.g., Lip-Reading*, by Edward B. Nitchie (London: Methuen and Co.).

labial sounds. Opening and closing the mouth, so as to bring the teeth together; putting out the tongue, deviating it to the right and left, and touching with it the teeth of the upper and the lower jaw respectively, also the roof of the mouth, are other forms of oral exercises serviceable in overcoming defects of co-ordination interfering with clear articulation. Exercises in deep breathing are also important.*

In most cases consonant sounds are more readily acquired than vowel sounds. The normal infant starts attempts at speech by repeating the simplest *labials* or *linguals*: "bab-ba," "mam-ma," and later "dad-da," are among the earliest efforts. Following these lines, the child deficient in speech should be exercised in simple reduplicated consonant sounds, followed by the open vowel *a* (*ah*). A schedule of speaking exercises based on these principles was published by the original author in an article on the "Educational Training of Idiots and Imbeciles," in Hack Tuke's "Dictionary of Psychological Medicine."† In this the repetitive phonetic (*e.g.*, "mam-ma") is coupled with the name of a common object ("mat," "man"), of a part of the body ("mouth"), and of part of dress ("muff," "mitten"), beginning with the consonant sound (*m*); and so on through the series of labials, linguals, labio-dentals, gutturals, and nasals. There is also a table of vowel sounds and examples. But for the present work it must suffice to say that for mentally deficient children half the battle is to sustain their interest, and mechanical exercises in speaking, however well devised, must be brightened up by illustration. The

* *Breathing Exercises*, by Duncan Matheson Mackay, M.D. (London: J. Bale, Sons and Danielsson), price 1d.

† Churchill, 1892, vol. ii., p. 673 (see Appendix C, p. 261).

naming of objects in well-chosen pictures,* and of the child's own surroundings, and the imitation of the characteristic cries of animals, are some of the best means of making a start with speech. A child will demur to repeating sounds read by a teacher from a table, though he will cheerfully respond to the questions, "What does the cow say?" ("Moo"), or, "What does pussy say?" ("Mew"). Similarly he will imitate the "Ba-ba" of the sheep or the "Bow-wow" of the dog, and thus learn both consonant and vowel sounds without conscious effort. Slovenly pronunciation, with slurring of final consonants, especially if doubled, is a frequent failing with the child of inert temperament, and needs to be dealt with by vigilance in reading and recitation exercises. Stammering, and especially stuttering, is common with those of neurotic type, in whom slow and deliberate utterance should be encouraged, exercises in deep and diaphragmatic breathing being an essential preliminary, with practice in controlling the exit of the breath. Intonation of vowels, and the gradual introduction of preceding consonants, special attention being given to those over which there is tendency to stumble, are among the expedients found serviceable, but these methods are best applied by skilled teachers capable of appreciating the physiological disabilities of the pupil. For those following up the subject valuable hints will be found in such treatises as Dr. Wyllie's on "The Disorders of Speech"; Dr. W. S. Colman's article on "Impediments of Speech," in Allbutt's "System of Medicine," vol. viii.; in Dr. Leonard Guthrie's "Functional Nervous Disorders in Childhood," and in "Elements of Experi-

* Tuck's *Book of Objects* is recommended; also Nelson's *Sets of Sacred Pictures*, and Miss Headdon's *Household Object-Lessons* (Cox and Co.).

mental Phonetics " and other publications by Dr. E. W. Scripture.

There are two peculiar modes of speech, occurring, indeed, at a certain stage of development in normal children, but apt to persist in what Dr. Guthrie well designates the "crystallised infancy" of imbeciles, which call for special notice here—**Echolalia** and **Idioglossia**. By **Echolalia** we mean the parrot-like imitation of heard sounds and words without any definite connotation of their meaning in the mind of the imitator. All children begin to talk in this way, but the bright child soon associates the sound "*Mamma*" with his mother, "*Nan-na*" with his nurse, and so on. In due time he attains a rational vocabulary, which he is able to apply in naming familiar objects, and subsequently in replying to questions. But with some low-grade imbeciles this stage is never attained. Hearing being, however, good, and the commissural connections between the auditory centres and the organs of speech fairly developed, a kind of reflex action is set up without the intervention of thought, and what is merely the echo of spoken words is the result. In some cases only the last words of a phrase are repeated, in others the whole phrase. Thus an imbecile, when asked "What is your name?" may reply simply, "*Name*"; or another may vacantly repeat the whole question without giving an answer. Yet the fond parent will stoutly maintain his child can "speak," and will be much discouraged, if not indignant, when told that such speech is nothing worth, and, if persistent at an age beyond infancy, denotes a low grade of mental defect. Of course, with a quite young child the prognosis is more hopeful, as there is a chance, under persevering training of the powers of observation, of his attaining the

indispensable association between the name and the thing.

Idioglossia (described by some authors as a severe form of "lalling" or lisping) is a term applied to a species of "baby language" persistent beyond the period of babyhood. Up to three or four years of age the normal child is apt to substitute sounds easy of articulation for more difficult ones: thus, "muvver" is substituted for "mother"; "tahēē" for "father"; and so on. Further, when phrases are formed, the pronunciation of the words may be grotesquely varied, as in such a sentence as "Ditty is dood 'ittle boy"—*Dicky is good little boy*. Fond and foolish parents and nurses sometimes allow themselves to fall into similar modes of language in conversing with their children, and so correct pronunciation is delayed. A child, indeed, sometimes builds up a fancy language of his own, unintelligible to any but his intimates; this may seriously handicap him in the early years of education. In some of these cases there seems to be partial auditory or visual defect: in others, however, there may be some degree of mental defect, and imbeciles are occasionally met with who have constructed a sort of language of their own, requiring a glossary for its comprehension. Such a girl of ten, formerly under Dr. Shuttleworth's care, habitually called him "*Fish*," because her family medical attendant had been a Dr. Fisher; his wife she designated "*Fish-mamma*," and his daughter "*Fish dolly*"! An old man glazing the greenhouse was promptly christened by her "*Pa-putty*"! In this case the "idioglossia" (using this term in its etymological rather than strictly scientific sense) seems to have had a philological basis. Interesting as these deviations from normal speech may be, they are not,

however, to be encouraged; and in the case of imbecile children especially, every effort should be used to promote correct pronunciation. Training in speech is, indeed, a valuable means of fixing the attention and cultivating muscular co-ordination, and in these respects, as well as for its specific effect, may be regarded as a valuable adjuvant to other educational measures.

It has already been remarked that, with the feeble-minded, music is often a stepping-stone to speech. Such children will frequently hum tunes that take their fancy before they are able to articulate words; but if attractive tunes set to words containing repetitions of simple sounds (such as the "Ba-ba, black sheep" of our old Nursery Rhymes*) are constantly repeated to them, the probability is that, after a time, first one word and then another will be taken up by the pupil, till the rhyme as well as the tune is known.

So far our attention has been given to the production of articulation, and to the correction of peculiar modes of expression. The psychological aspect of the subject has, however, briefly to be considered, the mere production of articulatory sounds being futile unless there is some intelligent comprehension of the meaning of the sounds and words learned. Language is distinctive of human endowment, but this implies an understanding of the spoken word, which the normal child gradually attains; but what is spontaneous with him has to be laboriously treated as a subject of instruction with defectives.

* Elliott's *National Nursery Rhymes* is recommended for this purpose; also *Nursery Rhymes and Children's Songs*, by J. F. Simpson (Cramer and Son), and the books of *Action Songs* published by Curwen.

To quote Séguin, "Language is music to the ears before it becomes *ratio* to the mind." And a beginning may be made in such simple ways as getting the child to point to and name the parts of its body (*e.g.*, eyes, nose, mouth, teeth, etc.), and subsequently in due course to obey simple verbal commands—*e.g.*, "Sit, stand, come here, go there," etc.; to realise the meaning of "up, down, through, out," etc., as applied in school exercises of the simplest kind, and so gradually gather up a vocabulary of short words of known meaning to be augmented by familiar and interesting talks between teacher and pupil. Action is, indeed, the most conclusive test of understanding of words: hence the advantage of "action songs" and other mobile exercises, for which simple apparatus has been devised by experienced teachers.*

We pass from the cultivation of speech, which occupies an intermediate place between sensorial training and the co-ordination of muscular movement, to a consideration of the exercises more especially addressed to the latter, which we include under the comprehensive designation of **drill**. With children of deficient bodily as well as mental development, physical training is serviceable not only for muscular growth and co-ordination, but, inasmuch as it demands prompt obedience, for strengthening the faculty of attention. The movements must be gentle and adapted to individual capacities, and even *incapacities*; mere "tours de force" are inadmissible. Musical drill is to be preferred—at any rate, in the

* See *Simple Beginnings in the Training of Mentally Defective Children*, by Margaret Macdowall, 2nd edition, 1921. London: Local Government Press Company. (R. T. Leach), 27, Fumival Street, E.C. 4.

first instance—whenever practicable, and there are now many excellent manuals on this subject, such as Gill's "Physical Exercises," Alexander's "Musical Drill for Infants," etc.,* which may be advantageously used for exceptional as well as ordinary children. Light wooden dumb-bells, wands, and rings, are the simple apparatus required. The Syllabus of Physical Exercises issued by the Inter-Departmental Committee for use in Public Elementary Schools contains many that are also appropriate for special schools, including some for deep breathing. "Swedish" drill is of much value. For special infirmities, however, such as we frequently meet with in the mentally feeble, exercises have to be devised for particular cases; and the want of balancing power many show is overcome by "toeing the line," walking the plank, or stepping first between the broad bars of a ladder laid horizontally on the ground, and then from bar to bar. Deficient grasping power is strengthened first by the bean-bag exercises previously referred to, then by bar-bells, and finally by supporting the weight of the body on parallel bars or from the bridge-ladder. Séguin speaks highly of the beneficial effect of a swing worked by the child's feet from a spring-board in developing the lower limbs and strengthening weak knees.

Though scarcely gymnastic, **dressing lessons** may be given with advantage as class exercises to children inexperienced in putting on their clothes. Buttoning, lacing, and tying bows and knots bring into play fine adjustments of the fingers frequently deficient in the mentally feeble. For practice in this frames for

* See also *Physical Education*, by Lennox and Sturrock (Blackwood); also *First Lessons in Rhythmic Gymnastics*, by T. Keighley, and other publications by Curwen.

buttoning, lacing, and bow-tying, etc., have been patented as part of the Montessori method, though similar arrangements (*e.g.*, the fastening of clothes on a mannikin) have been in use in training institutions for defectives from time immemorial.

With regard to the more *ordinary school exercises*, we can only indicate a few points on which special stress should be laid in the case of mentally feeble children. "*Facta non verba*" should be the guiding principle; things done will make much more impression than things merely said; and whenever practicable, lessons should be illustrated by objects. Mere parrot-like repetitions of matters committed to memory should be discouraged; nothing should be learned by rote which is not understood, otherwise much labour may be lost, and at length we may find (with Longfellow) that

" In an idiot's brain remembered words
Hang empty mid the cobwebs of his dreams."

In this connection we may lay stress on the importance of simple conversational examination, in which the pupil is encouraged to take a full part, the teacher thus ascertaining how much the child has understood of a lesson, and encouraging the latter to add to his vocabulary and powers of language.

Object-lessons must start from the simplest facts within the child's observation. The names and uses of the sense-organs, of the limbs, of articles of clothing, of the furniture of the room, are some of the subjects upon which the child's intelligence should be exercised.

Nature-study is attractive to many, and is most useful in cultivating powers of observation.

Drawing and writing are best taught in the elementary stage by free-arm and large scale exercises

on the blackboard chequer. Drawing lines vertically, horizontally, and obliquely, between points marked by the teacher, and afterwards delineating common objects under which the names may, with help, be printed and written,* pleasantly lead the children on both to **writing and reading**,† and with regard to the latter it may be remarked that the “look and say” or “word” method is to be preferred to the old-fashioned plan of beginning with the drudgery of the alphabet.‡ Of course, the sounds and names of letters are learned at a later stage, words being dissected for this purpose with the aid of the letter-box. Madame Montessori has an ingenious system of cards upon which script letters of the alphabet cut in sandpaper are mounted, and over those forms the index-finger is passed in the direction in which the letter is formed in writing, as a preliminary exercise of the muscular, tactile, and visual sensations. These sensations are associated with the letter-sound, and writing, and subsequently reading, both of script and printed letters and words, are by this means acquired with more facility than by the ordinary method.§

Calculation is the *crux* in educating the mentally deficient. Counting (so-called) may be glibly done without any apprehension of the value of figures; consequently the concrete must always elucidate the abstract. Many excellent aids are published for this purpose, pictorial and otherwise; but the ingenious teacher will not be dependent on these, as the child's own fingers, the pupils in class, etc., are always avail-

* See *Reading Made Easy*, Anna Snell. Philip and Son, London.

† See Macdowall, *op. cit.*, pp. 47, 48, and 52.

‡ Gill's “Regina Reading Sheets” are useful.

§ *Montessori Method*, pp. 275, 303.

able for demonstration. Shells, beads, and the abacus are also convenient objects for counting. To elucidate the value of weights, money, and to teach simple calculation, there is nothing better than the "shop lesson," an elaboration of the nursery game of shop, in which common groceries are weighed out and paid for by the pupils, problems in change being tackled practically with real coins.

Space forbids us to enlarge upon technical points of education which have of late years been so well dealt with in treatises published by experienced teachers of defective children. Amongst these one may specially mention "An Introduction to Special School Work," by Miss M. F. Bridie, L.L.A., of Birmingham,* and "Simple Beginnings in the Training of Mentally Deficient Children," by Miss Margaret Macdowall.†

Industrial training is intimately interwoven with educational processes, but will be specially treated in the next chapter.

* London, Edward Arnold, 1917.

† London, Local Government Press Company, 2nd edition, 1921. (R. T. Leach), 27, Furnival Street, E.C. 4.

CHAPTER X

INDUSTRIAL TRAINING AND RECREATION

To complete the educational fabric appropriate to mentally deficient children, the woof of **industrial training** must be closely interwoven with the warp of scholastic exercises, and a wholesome moral influence must be the pattern pervading the whole. In this chapter we offer some hints on special modes of industrial training.

The "occupations" of the Kindergarten, selected so as to avoid too minute work, form attractive and serviceable preliminaries to handicraft. "Paper-weaving," for instance, is an excellent preparation for the more prosaic industry of stocking-darning, and the "pricker" used for perforated pictures will serve as an introduction to the cobbler's awl. Useful as are Kindergarten occupations for training the fingers, and, through them, the intelligence, the actual products of child-labour in the way of bead necklaces, variegated paper mats, clay and cardboard models, etc., have a real value in developing continuity of attention and stimulating further effort, a tangible result being specially satisfactory to the mentally feeble child. In this respect, industrial training has an advantage over book-learning, and it has been well remarked that feeble-minded children learn more with their hands than with their head. A judicious industrial trainer, in fact, develops the child's intelligence *pari passu* with the use of his fingers.

The kind of employment most suitable differs with the particular characteristics of each case. With the majority, outdoor work is the best whenever practicable, and we have repeatedly seen both physical and mental development set going in this way when indoor teaching and employment had proved ineffective. Whenever practicable, the régime of an open-air school is the ideal in the instruction of defective, nervous, and backward children. Careful supervision is, of course, needed; otherwise, if put to weed a garden the child may ruthlessly root up plants as well. The love of seeing things grow, however, should be fostered, and the child will soon watch with interest how the seedling gradually becomes the plant. To every special school a children's garden should, if practicable, be attached. The care of plants in pots, the growing of bulbs and germination of acorns and chestnuts in glasses, and even growing mustard and cress on moistened flannel, are simple forms of Nature-study which delight the pupils of the London special classes. Kindness to animals should be inculcated; and, when this exists, occupation at a farm is often beneficial, much interest being taken in the stock.

For town-bred children, unfortunately, outdoor occupations are not, as a rule, available. There are, however, many varieties of manual training now practised in connection with our public elementary schools and in technical-classes in which the mentally feeble may participate. The making of woollen and cocoanut fibre mats, cloth and cane weaving, simple brush and basket making, straw-plaiting, sashline-making, chair-caning, bent-iron work, and toy making are some of the arts which furnish a pleasing result; the same may be said of macramé work, which

in our experience is an excellent exercise for those subject to finger twitches. We have elsewhere remarked that these athetotic patients frequently possess graphic and artistic ability; for such, wood-work and even wood-carving form congenial employments. It is marvellous how, by persevering exercise of will-power, such pupils gradually overcome their spasmodic movements, and are at length able to execute quite fine work with the chisel and graving tool. Girls with athetoid affections often become, under training, good needlewomen, putting in their stitches with great regularity. The mysteries of knitting, crochet, and other fancy work, can also be mastered; and we have seen a mentally feeble girl, crippled in her right hand by spastic contractions, do fine-art needlework with the left. At some institutions lace-making is carried on with considerable success. An excellent handbook for trainers,* entitled *Industries for the Feeble-minded and Imbecile*, has been published by Mr. A. Bickmore, the able Craftsman of the Darent Industrial Colony. Practical advice is therein given as to the various industries found serviceable in a Poor Law institution, amongst which he mentions, in addition to wood-work and building handicrafts, such occupations as printing, book-binding, envelope and paper-bag making, cardboard-box making, tin-ware and metal-plate work, as well as the more ordinary trades of shoemaking, tailoring, and brush and basket making.

The practical needs of after-life must, of course, be borne in mind in selecting a particular employment. The gentleman's son, though comfortably provided

* *Industries for the Feeble-minded and Imbecile*, by A. Bickmore. London: Adlard and Son, 1913.

for, will be all the happier for having an occupation to turn to; for such, carpentry, wood-carving, and even turning, are good indoor pursuits, whilst gardening and farming are specially appropriate. Young ladies who by reason of their feeble-mindedness will be to some extent debarred from the ordinary pursuits of society should be encouraged to take an interest in domestic matters, and to assist in arranging floral decorations. They may also employ themselves in a variety of fancy work; and if they possess any artistic or musical tastes these should be cultivated.

For children of the working class some occupation which they can carry on under the eye of their parents is desirable. If they live in the country, they should be trained for agricultural labour, the care and feeding of stock, dairy-work, or to assist in the garden. If in town, some work which they can practise at home, or in *small* establishments, such as cobbling or tailoring, basket or doormat making, should be taught; for obvious reasons they are unfit for factory work. In the Great War there is no doubt that a large number of feeble-minded youths, some of whom had been trained in special schools, were enrolled for military service, no test of intelligence, such as that wisely instituted by the American Army, being used at enlistment. The strain of modern warfare was most disastrous in these imperfect natures, and neurasthenia and psychasthenia, in the form of shell-shock and mental breakdown, abundantly demonstrated the folly of relying exclusively on physical tests of fitness for military service. It is reported that upwards of 200 men and youths who had passed through the schools for mental defectives in Birmingham joined His Majesty's

Forces, and no less than 111 were reported as still serving with the Colours in 1919. Though the discipline and outdoor life of the army may seem, in peace-time, beneficial for the more intelligent cases of good physique, comparatively few could be expected to become efficient soldiers able to face the conditions of modern warfare. Consequently the State paid the penalty for its disregard of psychopathic considerations. Many defectives who have been brought up in institutions are capable of earning their living under favourable circumstances, but the "*res angusta domi*," and (too frequently also) parental incapacity, are *not* favourable circumstances; consequently, if discharged to their own homes, there is much risk of training being thrown away. This is one of the arguments in favour of permanent custodial working-homes and colonies being instituted by private benevolence and public authorities for mentally deficient children capable of useful industry.

Recreation.—For mentally feeble, as well as other children, the maxim "*ne quid nimis*" is especially appropriate. Study and occupation must be varied, signs of fatigue watched for and guarded against, while relaxation is essential. But care must be taken that relaxation does not degenerate into loafing; active recreation must be encouraged. Mentally deficient children, particularly those of low grade, are apt to be of solitary habit; they have no idea of combination, even for games. Games of ball may, indeed, be practised alone, but they are much more useful when played with others in the form of rounders, cricket, stoolball, or tennis. Football can only be played under special conditions; it forms a valuable exercise not only for the limbs but for the wits. Games at marbles are good for finger training.

Trundling hoops, playing horses, the use of a scooter, and in some cases cycle-riding should also be encouraged. Skipping is an excellent exercise, for boys as well as girls, so long as the heart is all right. Battledore-and-shuttlecock is good training both for hand and eye. Of indoor recreations, dancing is to be specially commended as tending to improve carriage and diminish the tricks of gait which often mark the mentally deficient. "Musical Chairs," "Post," and similar games, promote both activity and intelligence. Bagatelle is a good indoor diversion, the scoring being of educational value; and the game of dominoes helps in ideas of number. Simple card games may be played by the more intelligent. The "children's hour," so valuable an institution in normal nurseries, is specially important for the mentally feeble, who often require to be *taught* to play, and sleep better for the romp before retiring.

The love of music which is common with the mentally feeble suggests attendance at concerts and at musical services as appropriate modes of enjoyment. With some a considerable sense of humour exists, and theatrical performances, especially when abounding in comic situations, are much appreciated. It is of importance that entertainments at which mentally deficient children are present should be of a refined character. Coarse buffoonery and scenes of violence—provocative to some weak minds of imitation—should be carefully avoided. In these days the cinema show can hardly be tabooed, but care is necessary as to the character of the pictures.

In concluding this chapter we may note with satisfaction the increasing importance which, as the result of experience, has of late years been attached to the place of manual work in the educational curriculum

of the mentally deficient child. In his Annual Report for 1909 the Chief Medical Officer of the Board of Education wrote as follows: "The introduction of manual instruction into the curriculum receives its practical sanction from the certainty that any attempt to train the feeble-minded child through the abstract literary methods of the elementary school must be doomed to failure, and the mentally defective children will never be able to earn their living, entirely or partially, by any other than manual means." Since those words were written the tendency has been to develop manual work more and more as the most important element in training. Appendix D shows specimens of time-tables now in use in the London County Council Special Schools.

CHAPTER XI

MORAL TRAINING

THE essential principle in **moral discipline** is friendly guidance, not coercion. With the mentally deficient especially, "force is no remedy"; the "cowed" child will be a cowardly child, with no pluck or spirit to advance. At the same time judicious firmness must be exercised; and consistency in word and deed, combined with tact, are essential to moral influence. The mentally feeble, like the ordinary child, soon finds out to whom he must render prompt obedience. It is particularly true of him that he cannot "serve two masters," so that attempts at dual control are apt to result in failure. This should be borne in mind in making arrangements with a governess, whose influence should not be impaired by unnecessary parental interference.

A system of rewards and punishments, modified to meet individual peculiarities, is often efficacious. Mentally deficient children are frequently eager to obtain the commendation of their superiors, and sometimes withholding commendation will make sufficient impression; at other times words of reproof are necessary. The Regulations of the Board of Control prohibit the administration of corporal punishment to any patient in institutions for mental defectives. It is true that corporal punishment is rarely beneficial; yet there are cases where pain

wantonly inflicted on others is appropriately visited by pain inflicted on the offender. Sometimes an appeal to the mind is best made through the stomach: cutting off some favourite article of food (*e.g.*, pudding or sugar) from the day's dietary may mark disapproval better than any other procedure. The deprivation of some anticipated pleasure, such as attending an entertainment or going to church, will often be efficacious; with younger children the temporary forfeiture of a favourite toy may be all that is necessary. Older cases occasionally develop a keen interest in the value of money, and are then touched by an abatement of their allowance, or the enforcement of a fine. The weak-minded person must not be encouraged in the notion—but too easily taken up with dangerous consequences—that, because he is not quite like other men, he is less responsible for his actions. From foibles he should, of course, be guarded; and he should learn to respect his neighbour, and act on the legal maxim, “*Sic utere tuo, ut alienum non lædas.*”

Perhaps the most trying case we are called on to deal with amongst children mentally abnormal—though, indeed, there may be but little evidence of intellectual deficiency—is that of the **moral imbecile**. The despair of his parents, the *bête noir* of the institution, the perplexing puzzle of the jurist—he seems to be the ill-fated product of inherited nervous instability and ancestral criminal instincts. In the Mental Deficiency Act, 1913, **moral imbeciles** are defined as “persons who from an early age display some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect.” It must be noted that three conditions qualify this definition:

(a) *mental* defect coupled with moral infirmity, (b) displayed *from an early age*, and (c) of a *permanent* character. In practice it will be found that these qualifications materially narrow the application of the term "moral imbecile" for legal purposes. If, however, we may judge from a decision given (in 1914) in the case of a highly educated B.Sc. London and Whitworth scholar convicted at the Old Bailey of fraudulent conduct, but subsequently dealt with by the Judge as a moral imbecile under the Mental Deficiency Act, it would appear that slight evidence of mental defect may be held sufficient.

The police in many large centres of population know children, members sometimes of respectable families, whom they shrink from prosecuting, but whom they cannot otherwise restrain from crime. Schools of the highest class are not unfrequently confronted with the problems that arise from the presence of an undesirable pupil of this type. He, or she, may combine the most innocent, sometimes engaging, external appearance with an inner depth of cunning and iniquity which requires to be experienced to be appreciated. The sudden impulses to mischief occurring in these cases are sometimes of an epileptoid character, and paroxysms may in such cases be cut short by bromides. But as a rule moral discipline is of little avail; punishment may be administered, and professions of penitence called forth, only to be forgotten as soon as the mental disturbance again recurs. The original author has a vivid recollection of three nice-looking children, sisters and brother, formerly under his care, who at times would appear models of propriety, while at others they had all the characteristics of little demons. With innocent expression they would furtively accom-

plish the most abominable mischief, and, after meekly acknowledging the error of their ways, would emphasise their apology by a missile flung at the head of the person who had attempted to bring them to repentance! Such children would in old time have been called "possessed"; now they are classified as cases of moral imbecility or juvenile insanity. Dr. Samuel J. Fort described such cases under the title of "Psychical Epilepsy";* and in his Goulstonian Lectures for 1902 Dr. G. F. Still pointed out that a severe bout of convulsions in infancy is sometimes followed by arrest of moral development. Arson is a crime that has a special fascination for these degenerates, and so has the placing of obstructions on railways. The catastrophies that may result in consequence furnish a strong argument for permanent detention. It occasionally happens, however, that moral aberrations of a transient character are met with in young people of neurotic heritage, whose unstable mental equilibrium has been upset by the strain of pubescence. Such are the cases in which a propensity to petty peculation develops itself in boys or girls who have previously borne good characters at a high-class school; it is sometimes accompanied by other eccentricities of conduct, and is often apparently motiveless. Our experience has been that on removal to an appropriate environment many of these cases improve under tactful management, and when the stress of pubescent development has subsided, there may be a gradual restoration of moral control. Psychotherapeutical treatment is sometimes a help in such cases. In the absence of mental defect an

* *Proc. Association Amer. Institution for Idiotic and Feeble-minded Persons*, 1894, p. 400.

analysis will often show a definite mental conflict. Common causes are too rigid parental discipline, an unsuitable occupation, and sexual difficulties.

As long ago as 1909 America took the lead in making juvenile delinquents the subject of medico-psychological investigation, Dr. William Healy being appointed Director of the Psychopathic Institute in the Juvenile Court at Chicago. We are indebted to Dr. Healy for an important treatise* on his work. Other centres in America have started on similar lines, and Dr. V. V. Anderson† and others have given us useful information. In our own country Birmingham has the credit of being the pioneer. Early in 1919 the Justices of the City appointed Dr. W. A. Potts to examine cases referred by them; six months later Dr. Hamblin Smith was appointed Medical Officer at the Birmingham prison in order that both inside and outside the prison there might be available a medical practitioner experienced in psychology. The first report of their work was published in October, 1920. This showed that in spite of the energetic administration of the Mental Deficiency Act (1913) in Birmingham during the six years it had been in force mental defectives were still coming before the Court and even sometimes finding their way into prison. The investigations carried out so far have shown that there are a number of young persons brought before the Court who cannot be certified under the Mental Deficiency Act, but who are at the same time so far backward or wanting in moral sense that they require training and control

* *The Individual Delinquent*, by William Healy, A.B., M.D. London: Heinemann, 1915.

† "Mental Defect in a Southern State," by V. V. Anderson. *Mental Hygiene*, October, 1919.

for a long time. Dr. Potts'* experience has convinced him that many young criminals begin to go wrong at an early age, nine or even seven, and that the only effective method of dealing with the problem is to recognise the trouble and take it in hand early. He regards it as unfortunate when young prisoners, charged for the first time, are therefore discharged, because he has often found that they have been on the wrong path for some years.

In some disappointing cases we find considerable improvement in intelligence and manual skill with actual deterioration of the moral sense. Intelligence and skill which have been acquired are, indeed, used for evil purposes; and Dr. Kerlin, the former Superintendent of the Pennsylvania Institution, who paid much attention to this class, came to the conclusion "that to educate them often gave them added power for evil, and that they should not be allowed to prey upon society." He claimed that moral imbeciles "should be treated in a class apart in buildings by themselves, as they affect the methods of living and training of the rest."† Dr. Jules Morel has, in an able communication to the Medico-Psychological Association,‡ advocated the establishment of special institutions, intermediate between reformatories and asylums, wherein "such persons should be objects of prophylactic treatment against crime." Similar views have been expressed by Dr. Barr, who succeeded Dr. Kerlin in charge of the Pennsylvania Institution. In his communication to

* "The Juvenile Delinquent," by W. A. Potts, M.A., M.D. *School Hygiene*, November, 1920.

† *Forty-first Annual Report, Pennsylvania Training School*, Philadelphia, 1893.

‡ *Journal of Mental Science*, vol. xl., p. 599.

the section of the Royal Commission on the Care and Control of the Feeble-minded which visited America, he stated, in reference to the patients under his charge at Elwyn: "Many of the children are absolute criminals. Some are the victims of circumstances, but the absolutely bad children we cannot do anything with. We have fifty to seventy-five of them. I think our Government should take up the question of these children. I should have these form a national colony on the bad lands of the West, to be taken care of under military discipline."* In our own country the Board of Control are dealing with the problem by the provision of State Institutions for defectives of marked dangerous or violent propensities.

In recent years surgical sterilisation has been often advocated as more humane, and also more economical for the community, than segregation. In America eight of the States of the Union have laws which authorise or require such procedure in certain classes of defectives and degenerates—viz., Indiana, Connecticut, Washington, California, Iowa, Nevada, New Jersey, and New York; the first (in Indiana) having been enacted in 1907, the last (in New York) in 1912. In all these enactments the determination of the individual to be operated on is entrusted to a State Commission or Board, and vasectomy (excision of a portion of the vas deferens) in the male, and salpingectomy (excision of the Fallopian tubes) in the female, are the operations usually resorted to. The conclusions arrived at by a committee of well-known experts, who carefully investigated the results attained, were that, while vasectomy is a simple innocuous

* *Report of the Members of the Royal Commission on the Care and Control of the Feeble-minded upon their Visit to American Institutions* (vol. vii.).

method of procuring sterility in the male, though not always permanently, and not otherwise interfering with sexual function, there is a certain risk to life in the case of females, and occasionally of serious mental disturbance of both sexes. On the whole, American experience affords little support to the practice, which appears to be almost completely in abeyance. It must be remembered that turning loose among the ordinary population a number of sterilised mentally defective young women cannot fail to increase immorality and to spread venereal disease. As a matter of fact in connection with the control of such disease the feeble-minded constitute one of the most serious difficulties. In this connection reference should be made to the fact that during 1917 the Asylums and Mental Deficiency Committee of the London County Council induced the Governors of the London Lock Hospital to set apart a small portion of the institution for mentally defective girls suffering from venereal disease. In 1918 a certificate was given by the Board of Control "for five cases, with the intention that detention in the hospital shall be for such period as is necessary for cure, the patient being dealt with subsequently as occasion demands."*

* *Fifth Annual Report of the Board of Control for the Year 1918*, London: H.M. Stationery Office.

CHAPTER XII

RESULTS AND CONCLUSIONS

IN this closing chapter we propose to discuss the results which have accrued from the system of treatment and training we have endeavoured to describe, and to formulate some conclusions as to the value of the work.

The pessimism of the early part of the nineteenth century has fortunately been put out of court by the results obtained. Nearly every case is amenable to training, and capable of improving to some extent, with the result of rendering existence healthier and happier, and less burdensome to others. A considerable proportion can be "taught to conform to moral and social law, and rendered capable of order,"* and many "become capable of the ordinary transactions of life under friendly control, of understanding moral and social abstractions";† while, in the special case of cretins and other aments suffering from some glandular deficiency, marked amelioration of the symptoms may be obtained.

The experience of institutions for training youthful defectives both in this country and in America goes far to confirm the accuracy of Séguin's prognostications. The statistics of the Royal Albert Asylum, Lancaster,

* E. Séguin, *Idiocy, and its Treatment by the Physiological Method*, New York, 1866.

† *Ibid.*

gathered by Dr. Shuttleworth in 1890, with regard to the after-career of pupils discharged on completion of their seven years' training, showed that 10 per cent. were, or had been, earning wages; that 5 per cent. were remuneratively employed at home; and that 3.5 per cent., in addition, were capable of earning wages if suitable situations could be found for them. About 22 per cent. were reported to be more or less useful to their friends at home, while another 22 per cent. were said to be of little or no use; 29 per cent. had gravitated to workhouses and lunatic asylums; the remainder (8.5 per cent.) had died. In the Jubilee Report of the Royal Albert Institution (1914) it is stated that 10 per cent. of the patients discharged (from an aggregate of 3,433 who had been under training) had been rendered self-supporting, while not less than 82 per cent. had shown evidence of noticeable improvement. A case is cited of a boy earning 37s. a week in a Yorkshire bakery, and another of a patient, discharged twenty years previously, who gets 30s. a week "at a great dye-works near Leeds, and has never lost a day's work, except on the occasion of a strike, with which he had nothing to do." It must not, however, be imagined that even the best were in all respects equal to persons of average intelligence. Some residual peculiarity usually remains to handicap the feeble-minded in the race of life.

"It is not, indeed, to be expected that without some form of tutelage even the trained defective can hold his own in the outside world, and in the majority of cases it may be said:

" 'Tis not enough to help the feeble up,
But to support him after.' "*

* *Twenty-seventh Annual Report, Royal Albert Asylum*, p. 40.

There is no doubt, however, that by methodical training such support is rendered infinitely easier, and the burden to the friends lighter.

Before quoting other figures, it is necessary to explain that those of different institutions and societies can scarcely be compared; so much depends on the grade and type of mental defect selected. Till the passing of the Mental Deficiency Act, 1913, there were no generally accepted definitions, far less any universal standard. Under these circumstances the chief value of statistics is to show the possibilities and limitations.

The necessity for **after-care** has been established on *a priori* grounds; it is interesting to see the results. For this purpose we will take the records of the Birmingham After-Care (Education) Committee, which was the first to undertake this work. Founded in 1901 by Mrs. Hume Pinsent, it is now able to formulate nineteen years' experience. The last annual report (dated June 25, 1920) states, that of the 2,282 cases (1,380 males, 902 females)—

950 are doing remunerative work; of these 839 are earning wages which average 28s. 1d. per week. 519 are males, earning from 7s. to £6 per week (average 31s. 7d.); and 320 are females earning from 6s. to 50s. per week (average 22s. 6d.). 111 youths are soldiers. 193 (78 m., 115 f.) are living at home and doing no paid work. 42 (20 m., 22 f.) were dismissed from special schools as incapable, through physical or mental disability. 152 (97 m., 55 f.) have been transferred to ordinary schools. 25 (19 m., 6 f.) have been transferred to other schools—viz., 10 to schools for the deaf, 7 to reformatory or ordinary industrial schools, 4 to schools for the physically defective, 2 to schools for the blind, and 2 to schools for the partially

blind. 92 (59 m., 33 f.) are in workhouses; 238 (126 m., 112 f.) are in institutions for the mentally defective, including 201 (107 m., 94 f.) in the Monyhull Colony, and 19 in lunatic asylums. 5 (2 m., 3 f.) are in other institutions; 135 (87 m., 48 f.) have died, and 450 (260 m., 190 f.) lost sight of.

The committee state in their report that "the number in employment is larger than ever recorded previously, but it is still noticeable that after the age of twenty-two the numbers rapidly diminish relatively as well as actually both in the case of males and females. This fact bears out previous reports, and indicates that mentally defective persons tend to lose their situations and fail to gain others in adult life. They may be intermittently employed, but in rare instances do they hold the same situations for lengthy periods."

We should have liked, as in a former edition, to compare these statistics from Birmingham with those of the London Association for the Care of the Mentally Defective. Unfortunately, however, the London Association, in their report for the year ending December 31, 1920, state that "the number of cases visited during 1920, 1,616 in number, being only a small proportion of the whole number of 4,111 on the books, and it being impracticable to do more than keep in touch and notify the most urgent cases, it is felt any report which attempted, under such circumstances, to give exact detail as to the children's position with regard to remunerative work would be inadequate, and possibly misleading." The grant, however, now given by the London County Council to the Association has enabled the latter to increase their staff, so that in future complete records will be available. Indeed, there should soon be

ample statistics for comparison, as the Board of Education now requires of Local Education Authorities that for all Special Schools particulars must be given of the after-careers of children who have left.

Mr. E. W. Locke, Superintendent of the Western Counties Idiot Asylum at Starcross, when giving evidence before the Royal Commission on the Care and Control of the Feeble-minded, said: "I think that during the last ten years about forty children have been placed out in the world. I have information from about twenty of them; several of those are earning their own living independently, but they were brilliant exceptions; the others were living at home, and making themselves of use, going out to work, for instance, in gardens, or doing needlework at home, and so on." But he added, with regard to those who are discharged: "They ought not to go out into the world, any of them, never mind how competent they are to work." The subsequent comment by the Commissioners was: "This view is held by all our witnesses in regard to this branch of work."*

With regard to American experiences, we will refer to a paper by Dr. Walter E. Fernald, of Waverley, entitled "After-Care Study of the Patients discharged from Waverley for a Period of Twenty-five Years." The number of discharges for the period was 1,537, the number in the Institution ranging from 640 at the beginning of the period to 1,660 in 1914. Of those discharged 437 were transferred to other institutions and a considerable number could not be located. There were, however, 646 (470 males and 176 females) whose history in the

* *Report of the Royal Commission on the Care and Control of the Feeble-minded*, vol. viii., p. 159.

community could be obtained. "Of the 470 males, 28 were earning a good living without supervision." Their stay had varied from one month to twenty years. "Their weekly wages ran from eight dollars to thirty-six dollars." One had saved two thousand dollars; another had bought a home. Eleven of this group and two others had married, but the two latter had been sentenced to the reformatory for larceny. There were 12 children altogether, 6 having no children. None of the children seemed abnormal. Eighty-six others "were steadily working for regular wages, living at home, closely supervised by their relatives." "This group shows the influence of a good home in modifying the after-life of institutionally trained defectives without innate character defects. The good home presupposes the absence of hereditary criminal or anti-social tendencies." Sixty-eight males were readmitted. "The time at home varied from less than one month to eighteen years. Seven were idiots, 42 were imbeciles, and 19 were morons. None of the cases had been arrested or in serious trouble, but they did not get on well, or were a burden at home, or were not easily controlled."

The following table summarises the details for the males:

Earning a living, without supervision	..	28
Working for wages, supervised at home	..	86
Working at home, no wages	.. ..	77
Living at home, not able to work	.. ..	59
Arrested, but not sentenced	.. ..	23
Sentenced to penal institutions	.. ..	32
Committed to other institutions	.. ..	43
Readmitted to Waverley	.. ..	68
Died	.. ..	54
Total		470

“ Of the 176 female cases where the history could be obtained, 27 had married, and there were 50 children; 17 children had died and 33 were living. The social worker saw nearly all the children, and was not sure that any of them were defective. Seven of the married women had no children. Nearly all of the women had married men whose social status was rather above that of their own parents. Eleven married women were living useful and blameless lives.” “ All had been immoral before admission, and at first, after their admission to the school, were troublesome on account of their active sex interest. After their discharge and previous to their marriages, they had apparently behaved themselves and had earned their own living.

“ Of the 16 married women who are behaving badly, every one was discharged against our judgment, and only after a long contest and the use of powerful political influence; in 9 cases the courts ordered the discharge. In these 16 unsuccessful marriages the women turned out as we had predicted, with a record of sex promiscuity, alcoholism, thievery, etc. Four women had syphilis; none of them conducted a decent home. In all they had 24 children; one married moron who had 2 children, and one who had 6 children, were subsequently returned to the school. Both had been taken away from the school by town authorities under strong protest.

“ There were 11 unmarried mothers among the 176 discharges, and there were 13 illegitimate children in all.” “ Eight of these women were returned to the school after childbirth.” “ Not one of them had relatives with sufficient intelligence to give any assurance that they would be able to protect the defective daughter or sister, and none were closely supervised.

“ There were 48 females with a history of known sex immorality after discharge, including 16 married women, 11 unmarried mothers, and 14 subsequently committed to other institutions.” “ Of the 90 discharged females now at liberty, 52 are apparently giving no trouble.” The following table summarises the details for the females:

Married (11 doing well)	27
Self-supporting and self-controlling, unmarried	8
Working at home under supervision	32
Living at home, not able to do much work ..	23
Committed to other institutions	29
Died	24
Readmitted to Waverley	33
Total	176

The Report concludes with this paragraph:

“ The results of this survey should be interpreted with great caution. As a rule, the most promising cases are allowed to go home. They have received careful training. The parents have been properly instructed. Still many unpromising cases did well. There was a surprisingly small amount of criminality and sex offence, and especially of illegitimacy. We may hope for a much better record when we have extra-institutional visitation and supervision of all discharged cases. Those with definite character defects, especially those with bad homes, should be discharged with great caution. The survey shows that there are bad defectives and good defectives. It also shows that some apparently bad do ‘ settle down.’ And it shows much justice in the plea of the well-behaved adult defective to be given a ‘ trial outside,’ for apparently a few defectives do not need or deserve lifelong segregation. It is most important

that the limited facilities for segregation should be used for the many who can be protected in no other way."

In support of the claim for after-care, and as an embodiment of modern ideas in America on this question, we cannot do better than quote from the conclusions summarised by the members of the Royal Commission on the Care and Control of the Feeble-minded who visited that country:

"Most of the American institutions were started as schools for feeble-minded children, under the idea which prevailed that a large number of these could be educated so as to be able to take their place in the world alongside of their normal brothers and sisters. This idea has been modified by experience, and now it is the opinion of those whom we consulted that it is only a very small fraction of the feeble-minded who can stand alone, however excellent their education may have been. Two results flow from this: Firstly, although in some places the system of education still follows on the lines of that given in schools for normal children, in those institutions which appeared to us to be the most scientifically organised there is now a tendency to limit the instruction to such manual work as the feeble-minded are found able to perform, and as will afford them occupation and happiness as inmates of permanent working homes. Secondly, the opinion has now become general that the provision of schools for feeble-minded children must be accompanied by permanent homes for adults. The present schools have become congested with adults who have grown up in the school, and whom the managers have felt constrained to retain there for fear of the disasters which would have fallen upon the adolescent if turned adrift into the world. Hence, those interested in the American institutions have induced the State Legislatures to allow of the establishment of departments or branches for adults, into which they can draft

the children who have passed school age, and also admit from outside feeble-minded adult men and women whom the Poor Law or other public authority may think require the protection of a Home. Expert opinion condemns as ineffective and wasteful an institution which lacks a custodial department or colony or other annexe for adults."

Nevertheless, it is not quite fair to conclude that the utility of training institutions, though less comprehensively organised, is to be solely measured by success in industrial training. This, of course, is a positive gain, but there are other benefits, hardly less appreciated by those on whom the care of the mentally deficient falls. That a child should no longer be uncleanly, mischievous, or destructive in habits; that it should cease to disturb the peace of the household by discordant cries, and by untimely wanderings, are points which parents thankfully recognise; and if, in addition, it can be taught to undress and dress itself, to feed itself, and to behave with propriety, these results are by no means despicable, even from the economical point of view. It must not be forgotten that the charge of an untrained idiot at home usually monopolises the time of one of the older members of the family, who is thus prevented from earning wages; and without *judicious* training and discipline deterioration is pretty sure to occur. Even in the best-regulated families the care of a defective child is a constant anxiety; how much more in the labourer's cottage, where oftentimes only casual attention can be given to it? The relief to parents afforded by Institution treatment is well illustrated in the Report for 1894 of the superintendent of the Eastern Counties Asylum. He gives a striking

example of a mischievous imbecile, who "describes with great glee how (before admission) he was left to mind the baby, and blacked its face all over with soot, so that when his mother returned she might think she had a black baby; how his little sister wanted some water, and he told her to drink out of the kettle on the fire, by which she nearly lost her life; and how he was turned out of the Parish Church, during service, for pricking a boy with a pin, so that he yelled out and disturbed the whole congregation!"

For improved cases, able to take situations on leaving Training Institutions, it seems very desirable that there should be established in all parts of the country organisations of philanthropic persons willing to exercise a friendly supervision, such as the After-care Committees in London, Birmingham, and some forty (or more) other English centres. Since the passing of the Mental Deficiency Act, much has been accomplished in this direction by the establishment of the Central Association for the Care of the Mentally Defective, under the able chairmanship of Mr. Leslie Scott, K.C., M.P., with Miss Evelyn Fox as Honorary Secretary. This association, which has offices at 24, Buckingham Palace Road, S.W. 1, has proved most serviceable in promoting co-operation between public authorities and local voluntary associations dealing with defectives throughout the country. The thoroughly representative constitution of its Council facilitates discussions, from different aspects, of Mental Deficiency problems. It has co-ordinated the work of the local voluntary associations and aided the formation of new ones where needed, trained organisers and home-visitors being supplied if desired. Courses of practical instruction for social workers and for special teachers have been instituted,

and post-graduate lectures for medical officers dealing with defectives have been introduced. The association has also organised several successful conferences, thus giving workers an opportunity of comparing experiences and arousing public interest in the subjects discussed. Case-records are made on a uniform plan, and some 600 cases are dealt with each year.

Grants are made by the Board of Control under Section 48 of the Mental Deficiency Act to societies assisting or supervising defectives not in institutions, and thus local voluntary associations are subsidised in after-care work, which is now very properly insisted on in the case of those discharged from special schools or institutions. It is seldom that such cases are able to make their way in the world unaided, and we may instance the following cases as quite exceptional:

A former institution pupil, an example of the class now designated "feeble-minded" as distinguished from imbecile, though for a period an inmate of the Royal Albert Asylum, became, under instruction, an expert joiner, and (what was even more remarkable) from being a very imp of mischief grew up into a well-conducted, self-reliant youth, and ultimately emigrated to one of our colonies. When last heard of, he was practising his trade in a leading city, and in a letter home reported himself as doing well, business being brisk in consequence of a conflagration which had recently occurred! In another instance of mild defect, the result of an injury in infancy, treated at the Royal Albert Asylum with great benefit, a girl, after discharge, got respectably married, and is said to be an excellent housewife.

It is remarkable that of nearly a thousand discharged patients who had passed under observation at the Royal Albert Asylum the two just mentioned

are the only instances in which we have known marriages occur. It has, indeed, been urged as an objection to educating mentally deficient children, and fitting them for work in the world, that they would be thereby encouraged to marry, and, in consequence, there would be a risk of multiplying mental defect in the progeny. Our experience, however, does not altogether support this view. It is quite true that the mentally defective, when left to themselves, do produce, both in and out of wedlock, a considerable number of children, many of whom exhibit the same weakness as their parents. Dr. Potts, when working at Stoke-on-Trent for the Royal Commission on the Care and Control of the Feeble-minded, collected clear evidence on this point. It does not, however, hold good to the same extent in the case of those who have had judicious training in such an institution as the Royal Albert Asylum. In one case, that of a youth who, after a long period of Institution training, had become an industrious labourer, and was earning eighteen shillings a week, we ventured to ventilate the subject of marriage. The young man had been telling us how, in addition to paying for his board, he had been able to accumulate a fair amount in the Post-Office Savings Bank. "Well," we suggested tentatively, "perhaps you are saving up against getting married." "Nay, nay, doctor," was the reply; "it's hard enough for a feller to keep hisself, let alone bothering with a girl!" Such philosophy as this is rarely met with in the social class to which this youth belongs, or we should hear less of improvident marriages. The effect of judicious training seems to be to impress upon the improved imbecile that he is not quite like other men, and must not undertake the responsibilities of married life. Certainly, the net

result of training is to diminish the risk of transmitting the evil to another generation, inasmuch as moral principles are instilled which have a restraining influence on conduct. Moreover, the very fact of healthy occupation tends to keep in check the animal passions, which are apt to run riot when the adolescent imbecile is unemployed. This is one, amongst other reasons, for the establishment of permanent industrial homes like those belonging and affiliated to the National Association for the Feeble-minded.

Considerable experience in the training of mentally peculiar children of the well-to-do class has convinced us of the benefit resulting from appropriate education commenced at an early age, if due care be taken to provide after school life occupations suitable to their capacities under judicious supervision. We can point to cases in which artistic and musical talents have been developed so far as to render home life resourceful and no longer a burden to the relatives, and to others in which such pursuits as horticulture and farming have furnished useful careers.

The history of legislation for the benefit of educable feeble-minded as distinguished from *imbecile* children has already been given, and we have now had more than twenty years' practical experience of special classes for exceptional children in elementary day-schools. We think we can fairly claim that, where tried, they have filled up a *lacuna* in the scheme of national education. In the words of the Report of the Royal Commission on the Care and Control of the Feeble-minded:

"It [*i.e.*, the establishment of special schools] gave to those interested in education the first opportunity of trying what could be done for these children on day-school lines and under a special curriculum. Whether

the number of those who, when they left school, could materially support themselves were few or many, it helped to make the larger number of the children cleaner in person and habits, more orderly and more moral; it did this where the parents cared for their children and wished to do the best for them, and it did it, as far as might be, where the parents were careless and inconsiderate of their children's welfare. The scrutiny of the lives and mental condition of children, made in consequence of the investigations of Dr. Francis Warner, Dr. Shuttleworth, and others, led to the passing of the Act; and the Act itself has been instrumental in producing still further inquiries of the same nature."

The Report then goes on to show that it might not be altogether wise to continue simply on the same lines, and merely make the Elementary Education (Defective and Epileptic Children) Act, 1899, compulsory. It explains that the demand which the Act first created has assumed larger proportions.

"Schooling* in personal habits was found to be the first step in education. Then, more and more, it was made evident that the intelligence was roused through the hands and eyes working together in making or doing some actual thing, rather than by the secondary and more abstract accomplishments of reading, writing, and arithmetic. This suggested great changes in teaching. And now, in the opinion of many, the simple 'occupations' of the earliest years of schooling should develop into systematic industrial teaching, while the 'scholastic' teaching should become entirely subordinate, and, indeed, in some cases should be discontinued. But, as we have seen, criticism has gone farther still. Analysis has shown that the special school by itself is largely unserviceable, from the point of view of the after-life of the child. The feeble-minded child can,

* *Report of Royal Commission on Care and Control of Feeble-minded*, vol viii., p. 103, pars. 338 and 350.

in the main, become only a feeble-minded adult, educated into a rather better routine of thought and habit. If special education is required on his behalf in his school-days, special care will probably be necessary for him when he has left school; and, moreover, later on in life. All this, by degrees, the Act of 1899 has enabled many to learn."

Hence the idea that

"either the special classes will become classes for the dull and backward, from which the feeble-minded, except, possibly, those who are of the very highest type, will, by degrees, be excluded; or, as at Leicester, new classes for the backward will be started, and the present classes for the feeble-minded will be continued as a kind of lowest class of all, and will be supplemented to a much larger extent by institutional care of some kind. According to our judgment, this 'backward' class should remain under the direct control of the education authorities, for the children in them could not be certified; while the children who are or may become certifiable as mentally defective should fall within the province of the Committee for the Care of the Mentally Defective, who, either directly or by contract with the education authorities, should provide for them."

In a paper on the Result of Special School Education read at the Conference of the National Special Schools Union in Birmingham in 1910, Mrs. Hume Pinsent said, in regard to the children who remain in special schools, that "it is quite exceptional for any of them to reach a higher educational position than that attained in Standard II. This means that at sixteen the best of them will be able to read and calculate to about the same extent as a normal child of eight or nine. The numbers who attain to Standard II. are variously stated by witnesses as from 40 to 58 per cent., at the best only about half the total

number.” “ If it is a question of pleasure or profit to be obtained from reading, I am afraid we cannot flatter ourselves that special school teaching confers this benefit on the mentally defective; for to read for pleasure after school age a far greater ease and fluency must be obtained than is represented by Standard II. Only about half get even as far as this.” After pleading for more manual work, Mrs. Pinsent goes on to say that, “ Just as their manual work, though fair in its results when done under supervision, has no value in the open market, so their frail morality, when severed from the ever-present sanction of the teacher, falls to pieces on contact with the outside world, and succumbs to every temptation.”

As regards the results attained in the Residential Homes charitably founded for feeble-minded girls beyond school age, it must suffice to say that in some of those longest established an appreciable portion of income is derived from payments for the work of the inmates. Thus it has been calculated that at the Homes of Industry, established near Birmingham in 1892 by the late Miss Agatha Stacey, for feeble-minded girls, more than 4s. per head per week is on the average made by the labour of the 64 inmates in aid of maintenance, the weekly rate for which is 15s. It was stated, however, in the evidence before the Royal Commission, that, although these Homes are mainly custodial, out of 101 discharged for various reasons, not more than 3 were really fit to return to ordinary life. The industries carried on in the Homes consist principally of laundry work and of mat and rug making.

Did space permit, it would be easy to give proofs of individual improvement resulting from these and similar homes (of which a list will be found in Appen-

dix A); but for particulars the reader is referred to the Reports of the Homes, and to the publications on After-care of the National Association for the Feeble-minded, to be obtained at their offices, 72, Denison House, Vauxhall Bridge Road, S.W.* As the result of the passing of the Mental Deficiency Act, it is to be hoped that all defectives over sixteen who are without proper provision, and are a source of danger to themselves or the community, will be kindly taken care of in such institutions as we have described.

Objection has sometimes been taken to the benevolent efforts of the last seventy or eighty years in favour of the mentally deficient, that they are antagonistic to Nature's law, expressed in the formula, "The survival of the fittest." We would submit, however, that the reclamation of these outcasts, and more especially the "setting of the solitary in families" (*i.e.*, in institutions and colonies), has not necessarily been inconsistent with our duties towards posterity, for it has aroused a scientific interest in questions of heredity previously imperfectly understood. As Dr. Saleeby well puts it in his work on "Parenthood and Race Culture," "the ideal of eugenics is to abolish the brutal elements of the struggle for existence, whilst gaining its great end." Let us by all means adopt every reasonable measure to prevent the perpetuation of the evil, but in the meantime we are responsible for those weaklings we have allowed to be born as fellow-members of the human family. It is not denied that individual lives, which, if left to themselves, would probably be extinguished in the struggle for existence, are by

* Secretary, Miss A. H. P. Kirby.

fostering care prolonged, perhaps contrary to the rigid principles of social economy. It may, indeed, be admitted that much that has been done for the idiot and imbecile, and even for the feeble-minded, can only be justified on the ground of that quality of mercy which is "nobility's true badge," and "blesseth him that gives and him that takes." May we not indeed in this, as in much other philanthropic work which tends to soften the asperities of Nature's laws, endeavour humbly to follow in the footsteps of Him of whom it was foretold that "A bruised reed shall He not break, and the smoking flax shall He not quench" ?

LATEAT SCINTILLULA FORSAN !

APPENDICES

APPENDIX A

MENTAL DEFICIENCY ACTS, 1913.

(List kindly supplied by Board of Control, September, 1921.)

ENGLAND AND WALES.

Figures indicate number admissible.

m., Males only; *f.*, Females only; *m.f.*, Males and Females.

State Institutions.

(For defectives of dangerous or violent propensities. Managed and owned by the Board of Control.)

NOTTINGHAM.

m.f. RAMPTON STATE INSTITUTION, RETFORD—*Supt.*, W. Rees Thomas, M.D. (300)

SURREY.

f. FARMFIELD, CHARLWOOD, HORLEY—*Supt.*, S. E. Gill, M.D. (95)

Certified Institutions.

BERKSHIRE

f. CUMNOR RISE, CUMNOR—*Hon. Sec.*, Hon. Pamela Bruce. Radcliffe House, St. Giles, Oxford; *Supt.*, Miss Alice Haigh. (33)

CAMBRIDGE.

m. LITTLETON HOUSE SCHOOL, GIRTON—*Supt.*, Miss Peyton. (Also certified by Board of Education for 42 boys.) (9)

CHESHIRE.

f. ASHTON HOUSE, 26, Village Road, Oxton, Birkenhead—*Supt.*, Miss Daine. (40)

m.f. SANDLEBRIDGE, ALDERLEY EDGE—*Hon. Sec.* (Lancashire and Cheshire Soc. for Permanent Care of Feeble-minded), J. S. Walker, 54, Kenwood Road, Stretford, Manchester; *Supt.*, Miss Grace Wyatt. (295)

(Also certified by Board of Education for 115 boys and 85 girls.)

CUMBERLAND.

m.f. DURRAN HILL HOUSE, CARLISLE (R.C.)—*Sec.*, T. W. Hunter, Archbishop's House, Westminster, S.W. 1; *Supt.*, Sister Ethelburga Ring. (65)

DERBY.

m. HOPWELL HALL COLONY, NEAR DERBY—*Hon. Sec.*, Mrs. Kipping, 40, Magdala Road, Nottingham; *Supt.*, Mrs. H. Swinburne. (16)

(Also certified by Board of Education for 38 cases.)

f. WHITTINGTON HALL (INCORPORATION OF NATIONAL INSTITUTIONS), CHESTERFIELD—*Warden*, Rev. H. N. Burden, 14, Howick Place, Victoria Street, London, S.W. 1; *Supt.*, Miss Smith. (400)

(Also certified as Industrial School.)

DEVON.

m.f. WESTERN COUNTIES INSTITUTION, STARCROSS, NEAR EXETER, also ELM COURT (38)—*Supt.* and *Sec.*, E. W. Locke. (336)

(Also certified by Board of Education for 83 cases.)

f. DEVON AND EXETER HOME OF THE GOOD SHEPHERD, HOLLOWAY STREET, EXETER (Exeter County Borough Council)—*Supt.*, Deaconess F. Katharine Dickson. (53)

m. STOKE LYNE, WITHYCOMBE, EXMOUTH (County Council, Devon)—*Supt.*, Miss H. C. Darlington. (40)

DURHAM.

- m.* MONKTON HALL HOME FOR LADS, MONKTON, JARROW-ON-TYNE—*Hon. Sec.*, Dr. Ethel Williams, 3, Osborne Terrace, Newcastle-upon-Tyne; *Supt.*, A. H. Piggott. (48)
- f.* ST. CATHERINE'S HOME, ALLERGATE, DURHAM—*Supt.*, Miss Short. (6)

ESSEX.

- m.f.* ROYAL EASTERN COUNTIES INSTITUTION, COLCHESTER, also three ancillary establishments (160)—*Supt.*, F. Douglas Turner, M.B.; *Sec.*, A. Turner. (512)
(Also certified by Board of Education for 50 cases.)
- f.* ETLOE HOUSE, CHURCH ROAD, LEYTON, E. 10. (R.C.)—*Supt.*, Sister Susan O'Reilly. (122)
- m.* CO-OPERATIVE SANATORIUM (NEW LODGE, LEON HOUSE, THE HOMESTEAD and ST. KEVERNE), BILLERICAY—*Sec.*, E. L. Coppin, New Lodge, Billericay; *Supt.*, C. A. M. Poulson. (56)
- m.* BIGODS HALL, NEAR DUNMOW (R.C.)—*Supt.*, Sister Mary A. Ryan. (6)
(Also certified by Board of Education for 61 boys and as Industrial School.)
- m.* BRUNSWICK HOUSE, MISTLEY (L.C.C.)—*Supt.*, A. Oldfield. (50)
- f.* WALSHAM HOW HOME, 1, FOREST RISE, WALTHAMSTOW (CHURCH ARMY)—*Supt.*, Miss Lockwood. (42)

GLAMORGAN.

- f.* DRYMMA HALL, SKEWEN, NEAR NEATH—*Supt.*, Dr. E. Lewis. (70)

GLOUCESTER.

- f.* ST MARY'S HOME, PAINSWICK, NEAR STROUD—*Hon. Secs.*, S. G. Jones and Miss H. C. Wemyss; *Supt.*, Mrs. Oddy. (29)
- m.* BRENTY CERTIFIED INSTITUTION, WESTBURY-ON-TRYM, BRISTOL—*Supt.*, T. R. Lambert. (230)

m.f. STOKES PARK, BRISTOL, with ancillary premises, ROYAL VICTORIA HOME, HORFIELD, BRISTOL; CLEVEDON HALL, CLEVEDON; BEECH HOUSE, &c. (INCORPORATION OF NATIONAL INSTITUTIONS)—*Warden*, Rev. H. N. Burden, 14, Howick Place, Victoria Street, London, S.W. 1; *Supt.*, Miss Gladys Williams. (1578)

f. CHASEFIELD LAUNDRY HOME, 874, FISHPONDS ROAD, FISHPONDS, BRISTOL (Bristol County Borough Council)—*Hon. Secs.*, Miss Alice Mary Lavington and Miss Clara E. Sheppard, Stoberry Lodge, 18, Ashgrove Road, Redland, Bristol; *Supt.*, Miss Ada Brett. (40)

HAMPSHIRE.

f. ST. MARY'S HOME, ALTON (Wantage Sisters), (with ancillary premises at Worthing and Feltham for 19)—*Supt.*, Sister Florence Isabel. (64)

HERTS.

m.f. ST. ELIZABETH'S HOME FOR EPILEPTICS, MUCH HADHAM (R.C.)—*Sec.*, T. W. Hunter, Archbishop's House, Westminster, S.W. 1; *Supt.*, Sister Mary Edmund. (School and Colony.) (86)

(Also certified by Board of Education for 56.)

m. HILLSIDE, BUNTINGFORD (R.C.)—*Sec.*, T. W. Hunter, Archbishop's House, Westminster, S.W. 1; *Supt.*, Sister Catherine O'Toole. (45)

(Also certified by Home Secretary as Industrial School.)

m.f. KINGSMEAD SCHOOLS, WARE ROAD, HERTFORD (Herts County Council)—*Supt.*, G. T. S. Walters. (22)

(Also certified by Board of Education for 126.)

KENT.

m.f. PRINCESS CHRISTIAN'S FARM COLONY, HILDENBORO'—Part certified. Part approved. Applications to Miss Kirby, Secretary National Association for Feeble-minded, Denison House, Vauxhall Bridge Road, S.W.—*Supt.*, Miss Pitman. *See also Approved Homes.* (133)

LANCASHIRE.

- m.f.* ROYAL ALBERT INSTITUTION, LANCASTER—*Supt.*, Dr. W. H. Coupland; *Sec.*, S. Keir. (750)
- m.f.* PONTVILLE (R.C.) SPECIAL SCHOOL, AUGHTON, ORM-SKIRK—*Hon. Sec.*, Right Rev. (Mgr.) Canon Pinnington, The Presbytery, Great Mersey Street, Liverpool; *Supt.*, Sister C. Cullinan. (10)
(Also certified by Board of Education for 113 cases.)
- f.* THE HOME, 4, EVERTON TERRACE, LIVERPOOL—*Supt.*, Miss Mackie. (15)
- f.* THE LIVERPOOL MAGDALEN HOME, MOUNT VERNON GREEN—*Supt.*, Miss G. E. White. (15)
- f.* DOVECOT (HORTICULTURAL SCHOOL), KNOTTY ASH, LIVERPOOL—*Hon. Sec.*, Mrs. H. Pilkington; *Supt.*, Miss. F. C. Eyre. (30)
(Also certified by Board of Education for 36 girls.)
- f.* ADCOTE (LAUNDRY AND TRAINING HOME), PILCH LANE, KNOTTY ASH, LIVERPOOL—*Hon. Sec.*, Mrs. H. Pilkington, Wheathill, Hayton, near Liverpool; *Supt.*, Miss E. Foster. (19)
- m.f.* ALLERTON PRIORY (R.C.), SPECIAL SCHOOL, WOOLTON, LIVERPOOL—*Supt.*, Miss Ethelbert Thompson. (15)
(Also certified by Board of Education for 106 pupils.)
- m.f.* CALDERSTONES, WHALLEY, NEAR BLACKBURN (with ancillary premises, Brockhall, Langho [308])—*Clerk*, Lancashire Asylums Board, Sir Harcourt E. Clare; *Supt.*, Dr. F. A. Gill. (2100)
- f.* GILLIBRAND HALL, CHORLEY—*Supt.*, Sister Aimée de St. Rémi. (40)

LEICESTER.

- f.* CROSS CORNERS, BELGRAVE, LEICESTER (County Borough Council of Leicester)—*Supt.*, Miss Gertrude A. Ladkin. (32)

LONDON.

- f.* HELPING HAND HOME, 16, CATHCART HILL, HIGHGATE, N. 19—*Hon. Sec.*, Mrs. Geoffrey Russell, 20, Gower Street, W.C. 1; *Supt.*, Miss S. F. Griffith. (30)

- f.* LONDON LOCK HOSPITAL, HARROW ROAD, W. 9.—*Supt.*, H. J. Eason. (5)
- f.* SOUTH SIDE HOME, STREATHAM COMMON, S.W. 16 (L.C.C. Asylums and Mental Deficiency Committee)—*Clerk*, H. F. Keene; *Supt.*, Mrs. E. F. Price. (80)
- f.* 39, DOWNS ROAD, CLAPTON, E. 5.—*Sec.*, Miss C. Tozer, 39, Downs Road, Clapton, E. 5; *Supt.*, Miss S. Aubery (Girls over 8.) (25)
- f.* 41, DOWNS ROAD, CLAPTON, E. 5.—*Sec.*, Miss C. Tozer, 39, Downs Road, Clapton, E. 5; *Supt.*, Miss Mary Ryland. (Girls over 16.) (25)
- f.* 46-48, PEMBURY ROAD, CLAPTON, E. 5.—*Sec.*, Miss C. Tozer, 39, Downs Road, Clapton, E. 5; *Supt.*, Miss O. Rians. (Girls over 16.) (30)
- f.* SPRINGFIELD LODGE, GROVE HILL ROAD, DENMARK HILL, S.E. 5.—*Sec.*, Commissioner A. Cox, Salvation Army Social Work, 280, Mare Street, E. 8; *Supt.*, Miss Ada A. Davies. (28)

MIDDLESEX.

- f.* FIELD HEATH HOUSE SCHOOL, HILLINGDON, UXBRIDGE (R.C.)—*Supt.*, Sister Angelina Friel. (10)
(Also certified as Special School by Board of Education for 62 girls.)
- f.* CRATHORNE, OAK LANE, EAST FINCHLEY, N. 2.—*Sec.*, Miss Pierce, Church Army Rescue, etc., Homes, 57, Bryanston Street, W.; *Supt.*, Miss Emma D. Saltwell. Including mothers and children. (32)
- f.* BRAMLEY HOUSE, GORDON HILL, ENFIELD (Middlesex Mental Deficiency Committee)—*Clerk*, H. S. Freeman; *Supt.*, Miss Annie Gardner. (45)

SOMERSET.

- m.f.* ROCK HALL HOUSE (MAGDALEN HOSPITAL SCHOOL), COMBE DOWN, BATH, Bath Municipal Charity Trustees—*Clerk*, E. Fuller, LL.B.; *Supt.*, Miss J. Quinton. (38)
- f.* THE FRIARS, FRYERN LAWN, BRIDGWATER—*Supt.*, Miss A. E. Best. (17)

f. HOUSE OF HELP FOR WOMEN AND GIRLS, 112, WALCOT STREET, BATH—*Sec.*, Miss Twiss; *Supt.*, Miss Frances Hammond. (66)

m.f. YATTON HALL, YATTON, NEAR BRISTOL (Somerset County Council)—*Supt.*, Miss Jean McGill. (35)

STAFFORD.

m.f. THE CLOUGHS, KEELE ROAD, NEWCASTLE-UNDER-LYME—*Supt.*, Miss M. Smith. (50)

SUFFOLK.

f. HANDFORD HOME, Ranelagh Road, Ipswich—*Supt.*, Mrs. Alan Turner. (20)

f. ST. JOSEPH'S HOME, THE CROFT, SUDBURY (R.C.)—*Sec.*, T. W. Hunter, Archbishop's House, Westminster, S.W. 1; *Supt.*, Sister M. Murray. (15)

SURREY.

m.f. THE MANOR INSTITUTION, EPSOM, SURREY (L.C.C. Asylums and Mental Deficiency Committee, *Clerk*, H. F. Keene).

m.f. THE ROYAL EARLSWOOD INSTITUTION FOR MENTAL DEFECTIVES, REDHILL—*Supt.*, C. Caldecott, M.B.; *Sec.*, Harry Howard, 15/16, Ludgate Hill, E.C. (600)

WARWICK.

m.f. MIDLAND COUNTIES INSTITUTION, KNOWLE, NEAR BIRMINGHAM—*Sec.* and *Supt.*, H. Williams. (150)

f. AGATHA STACEY HOME, REDNAL, NEAR BIRMINGHAM. (Birmingham County Borough)—*Financial Sec.*, Miss C. P. Fleetwood, 158, Broad Street, Birmingham; *Supt.*, Miss Pegler. (40)

f. AGATHA STACEY HOME, ENNISKERRY, KNOWLE.—*Financial Sec.*, Miss C. P. Fleetwood, 158, Broad Street, Birmingham; *Supt.*, Miss Steventon. (24)

WORCESTER.

m. BESFORD COURT HOME, NEAR DEFFORD (R.C.)—*Supt.*, Rev. T. A. Newsome. (37)

(Also certified as Special School by Board of Education for 119 boys.)

YORKSHIRE.

- f.* RAWCLIFFE HALL, NEAR GOOLE (West Riding Mental Deficiency Committee)—*Supt.*, Miss Pearne. (130)
- f.* FARFIELD GIRLS' TRAINING HOME, THEAKER LANE, ARMLEY (Leeds County Borough Mental Deficiency Committee)—*Supt.*, Miss Rutherford. (47)
- m.f.* MEANWOOD PARK COLONY, MEANWOOD, LEEDS (Leeds County Borough Mental Deficiency Committee)—*Supt.*, Miss Longdown. (105)
- m.f.* MID-YORKSHIRE CERTIFIED INSTITUTION, WHIXLEY, YORKS (Mid-Yorks Joint Board for Mental Deficiency)—*Supt.*, Dr. Hearder. (140)
- m.* ASHFIELD, THORNTON, NEAR BRADFORD (Bradford County Borough Council)—*Supt.*, F. H. Macdonald. (47)
- f.* WESTWOOD, CLAYTON HEIGHTS, NEAR BRADFORD (Bradford County Borough Council)—*Supt.*, Miss H. Taylor. (48)
- m.* WALES COURT, KIVETON, NEAR SHEFFIELD (Sheffield Mental Deficiency Committee)—*Supt.*, Miss Morrison. (40)
- f.* TILWORTH GRANGE, SUTTON, NEAR HULL (Kingston-on-Hull Local Authority)—*Supt.*, Miss M. J. Davies. (50)

**Institutions Approved under Section 37.
(Poor Law Cases.)**

161 institutions have now been approved, names of which cannot be here inserted for want of space. Those of the Metropolitan Asylums Board, herein included, are given in a separate list on page 279.

The three largest institutions of this class specially referred to in the last Report of the Board of Control are:

1. Seafield House, Seaforth, nr. Liverpool (West Derby Union). 269 Defectives (*m.* and *f.*).
2. Monyhull Colony, nr. Birmingham (Birmingham Union). 260 Defectives (*m.* and *f.*) and 200 under Board of Education.
3. Prudhoe Hall Colony and Burn House, Prudhoe-on-Tyne (Northern Counties Conjoint Poor Law Committee). 577 Defectives (*m.* and *f.*)

**Certified Houses. (Proprietary Homes for
Private Cases, etc.)**

* Houses thus marked for private cases only.

DORSET.

- **m.* THE RECTORY, HINTON MARTEL, WIMBORNE—*Supt.*,
Rev. A. H. Baverstock. (8)

HERTS.

- **m.f.* ROWLEY LODGE, ROWLEY GREEN, BARNET—*Supts.*,
Misses Paetow, Wall, and Binney. (13)

LANCASHIRE.

- m.f.* CAVENDISH HOUSE, WOODVALE, AINSDALE, NEAR
SOUTHPORT (Miss Bowyer's)—*Supt.*, Miss L. J. Allen. (32)

LONDON.

- **f.* ST. MARGARET'S, 9, PRIORY ROAD, BEDFORD PARK, W. 4—
Supt., Miss Rose H. D. Whiting. (10)

MIDDLESEX.

- **m.f.* NORMANSFIELD, HAMPTON WICK, KINGSTON-ON-THAMES
—*Supt.*, R. L. Langdon-Down, M.B.; *Owners*, Drs. R. L.
and P. L. Langdon-Down. (140)
- **m.f.* THE GABLES, UPPER TEDDINGTON ROAD, HAMPTON
WICK, KINGSTON-ON-THAMES—*Supt.*, Miss F. H. Deck. (18)
- **m.f.* ARNISTON, 44, THE GROVE, ISLEWORTH—*Supt.*, Miss
M. D. Isbister. (20)

SUSSEX.

- **m.f.* AVONHURST, INHOLMES PARK ROAD, BURGESS HILL
—*Supt.*, Miss S. M. Macdowall. (22)
- **f.* VILLA MARIA, KEMP TOWN, BRIGHTON (in connection with
St. George's Retreat)—*Supt.*, Sister Mary Evangelist. (12)

YORKSHIRE.

- **f.* THE GRANGE, ALTOFTS, NORMANTON—*Supt.*, Mrs. E. A.
Howard. (15)

**Approved Homes. (Training Schools for
Uncertified Improvable Cases.)**

Homes thus marked are proprietary Training Schools for private patients.

BUCKS.

- **m.* LYNWOOD, WOBURN SANDS—*Supt.*, Mrs. A. M. Pinchin.
(6)

CORNWALL.

- f.* ELIZABETH BARCLAY HOME OF INDUSTRY, BODMIN—*Hon. Sec.*, Miss E. M. S. Shaw; *Supt.*, Miss Emily Hunt. (26)

DERBY.

- **m.* NEWBOLD HOUSE, NEAR CHESTERFIELD—*Supt.*, Miss Mole. (18)

DORSET.

- f.* KING'S GATE, AND FRITHSTOW, WEST MOORS—*Supt.*, Miss Mason. (14)

ESSEX.

- m.* GAY BOWERS, WEST HANNINGFIELD, CHELMSFORD—*Supt.*, P. Chennells. (7)

FLINT.

- m.f.* WALMER SCHOOL FOR BLIND AND BLIND DEAF, RHYL—*Supt.*, Miss A. E. Roberts. (13)
(Also certified by Board of Education for 11 cases.)

GLOUCESTERSHIRE.

- f.* ROYAL FORT HOME, ST. MICHAEL'S HILL, BRISTOL (Bristol Preventive Mission)—*Supt.*, Miss Blanche Whiteaway. (20)
- **m.f.* SOUTHEND HOUSE SCHOOL, HATHERLEY BRAKE, CHELTENHAM—*Supt.*, Miss A. King-Turner. (25)

KENT.

- m.* UPPER HOLLANDEN FARM, PRINCESS CHRISTIAN FARM COLONY, HILDENBORO' (Application to Miss Kirby, *Sec.* N.A.F.M., Denison House, Vauxhall Bridge Road, S.W.)—*Supt.*, Miss Pitman. (*See also Certified Institutions.*) (8)

MIDDLESEX.

- f.* ALEXANDER HOUSE, 117, HIGH STREET, UXBRIDGE (Application to Miss Kirby, *Sec.* N.A.F.M., Denison House, Vauxhall Bridge Road, S.W.)—*Supt.*, Miss E. Colliger. (24)
- **m.f.* BROOK HOUSE AND WHITE HOUSE FARM, SOUTHGATE, N.—*Supt.*, Dr. H. Corner. (37)
- **m.f.* ST. CHRISTOPHER'S (SCHOOL), AMHERST ROAD, EALING, W. 13.—*Supt.*, Miss M. C. B. Foster. (27)
- **m.f.* CONIFERS, KINGSTON ROAD, HAMPTON WICK—*Supt.*, Miss Florence Eddolls. (Drs. Langdon-Down.) (19)
- **m.* TREMATON, BROOM ROAD, HAMPTON WICK—*Supt.*, Miss A. G. Mackay. (Drs. Langdon-Down.) (24)

NORFOLK.

- m.f.* THE OTLEYS, SEETHING, NORWICH—*Supt.*, Miss S. A. Huntly. (30)

NORTHUMBERLAND.

- f.* HOME OF INDUSTRY, BOW VILLA, MORPETH (Managed by Committee)—*Supt.*, Miss A. A. Pawsey. (16)

SUSSEX.

- **m.f.* ST. PAUL'S, UPPER MAZE HILL, ST. LEONARDS-ON-SEA—*Supt.*, Mrs. J. Meiklejon. (36)
- **m.f.* CAUSEWAY HOUSE, HORSHAM—*Supt.*, Miss L. Arnold. (4)

YORKSHIRE (N.R.).

- **m.f.* THE MOUNT, WHITBY—*Supt.*, Mrs. Annie E. Priestly. (12)

MENTAL DEFICIENCY ACTS, 1913.

(List kindly furnished by Clerk, July, 1921.)

METROPOLITAN ASYLUMS BOARD.

INSTITUTIONS FOR IMBECILES, FEEBLE-MINDED, AND
MENTALLY DEFECTIVES.*(From London Parishes.)*

	<i>Accommodation.</i>		
	<i>Males.</i>	<i>Females.</i>	<i>Total.</i>
<i>Mental Hospitals</i> for imbeciles and *mentally defectives:			
Leavesden.. .. .	1,007	1,202	2,209
Caterham	1,017	1,092	2,109
Tooting Bec:			
(1) Mental hospital (adults) ..	486	576	1,062
(2) Receiving-home for children	28	24	52
Fountain Mental Hospital ..	363	303	666
<i>Industrial Colonies</i> for improvable imbeciles, feeble-minded, and mentally defectives			
Darenth:			
Improvable imbeciles	852	744	1,595
Feeble-minded and mentally defectives	320	310	630
Bridge Training Home, Witham:			
Feeble-minded (uncertified) ..	210	—	210
	4,283	4,251	8,534

* "Mentally defectives" are cases admitted under the Mental Deficiency Act, 1913, and are not necessarily *imbecile* or *feeble-minded*. The figures above are taken from returns submitted to the Board, May, 1921.

(Kindly supplied by Dr. Kate Fraser.)

LIST OF INSTITUTIONS FOR MENTAL DEFECTIVES
CERTIFIED IN TERMS OF THE MENTAL
DEFICIENCY AND LUNACY (SCOTLAND) ACT,
913.

INSTITUTIONS FOR ADULTS.

<i>Name of Institution.</i>	<i>Name of Superinten- dent.</i>	<i>Number for which Licensed.</i>		<i>Remarks.</i>
		M.	F.	
BARNHILL POOR- HOUSE	Mr. Henderson	26	26	
CRAIGLOCKHART	Mr. Young	15	15	
GOVAN POORHOUSE	Mr. Thomson	—	18	Female defec- tives
STONEYETTS (Glas- gow)	Dr. Chislett	174	171	Receives non- educable juve- nile defectives also

INSTITUTIONS FOR JUVENILES.

<i>Name of Institution.</i>	<i>Name of Superinten- dent.</i>	<i>Number for which Licensed.</i>		<i>Remarks.</i>
		M.	F.	
BALDOVAN (Dun- dee)	Dr. W. B. Drummond	260		
BRIDGE OF WEIR	Dr. Crocket	68	44	
LARBERT	Dr. Clarkson	500		
ST. CHARLES' (Glas- gow)	Sister Mary M'Donnell	31	39	For Roman Catholic chil- dren
WAVERLEY PARK (Kirkintilloch)	W. J. Hill (Secretary)		90	For educable de- fective girls only

IRELAND.

(Not included under Mental Deficiency Acts.)

STEWART INSTITUTION FOR IDIOTIC AND IMBECILE CHILDREN,
Palmerston House, Chapelizod, Co. Dublin.—110 boys
and girls. *Med. Supt.*, Dr. Rainsford; *Sec.*, W. M'c. O'Neill.

BRITISH DOMINIONS.

Canada : Orillia, ONTARIO HOSPITAL FOR FEEBLE-MINDED
(800); ALBERTA INSTITUTION FOR FEEBLE-MINDED.

Australia : KEW ASYLUM ANNEXE FOR IDIOTS, near Mel-
bourne; ADELAIDE INSTITUTION, S. Australia.

New Zealand : STATE INSTITUTION FOR MENTALLY DEFECTIVE
Boys, Otekaike, Oamaru, with Junior School at Nelson.

South Africa : DEPARTMENT FOR DEFECTIVE CHILDREN:
GRAHAMSTOWN ASYLUM, ALEXANDRA HOSPITAL, Mait-
land, Capetown.

APPENDIX B

UNITED STATES OF AMERICA: STATE PUBLIC INSTITUTIONS FOR FEEBLE-MINDED.

(From list dated 1919 kindly supplied by Dr. Walter E. Fernald.)

<i>Location.</i>	<i>Name.</i>	<i>Executive Officer.</i>	<i>Capacity.</i>
California, Eldridge	Sonoma State Home for the Care and Training of Feeble-minded Children and Epileptics	F. O. Butler, M.D.	1,345
Colorado, Arvada	State Home and Training School for Mental Defectives	A. P. Busey, M.D.	81
Conn., Lakeville	Connecticut Training School for Feeble-minded	C. T. La Moure, M.D.	550
Ill., Lincoln	Illinois State School and Colony	T. H. Leonard, M.D.	2,000
Ind., Fort Wayne	Indiana School for Feeble-minded Youth	G. S. Bliss, M.D.	1,391
Iowa, Glenwood	Iowa Institution for Feeble-minded Children	Geo. Mogridge, M.D.	1,500
Kansas, Winfield	Kansas State Home for Feeble-minded	F. C. Cave, M.D.	700
Ky., Frankfort	Kentucky Institution for Feeble-minded Children	S. L. Helm, M.D.	400
Md., Owings Mills	Maryland State Training School for Feeble-minded	Frank W. Keating, M.D.	700
Maine, W. Pownal	Maine School for Feeble-minded	Carl J. Hedin, M.D.	283
Mass., Waverley	Massachusetts School for Feeble-minded at Waltham with Colony at Templeton (300)	Walter E. Fernald, M.D.	1,625
Mass., Wrentham	Wrentham State School	Geo. L. Wallace, M.D.	1,200
Mich., Lapeer	Michigan Home and Training School	H. A. Haynes, M.D.	1,481
Minn., Faribault	Minnesota School for Feeble-minded and Colony for Epileptics	G. C. Hanna	1,600
Mo., Marshall	Missouri Colony for Feeble-minded and Epileptic	R. P. C. Wilson, M.D.	1,600
Mont., Boulder	School for Backward Children (a department of the Montana School for Deaf and Blind)	H. J. Menzemer (President)	93
Nebraska, Beatrice	Nebraska Institution for the Feeble-minded	D. G. Griffiths, M.D.	600
N. Carolina, Kinston (Hines)	Caswell Training School	C. B. McNairy, M.D.	200
N. Dakota, Grafton	North Dakota Institution for Feeble-minded	A. R. T. Wylie, M.D.	263

N.H., Laconia	New Hampshire School for Feeble-minded Children	B. W. Baker, M.D.	280
N.J., Vineland	*New Jersey Training School for Feeble-minded Children	Prof. E. R. Johnstone	500
N.J., Vineland	New Jersey State Institution for Feeble-minded	Madeleine A. Hallowell, M.D.	785
N.Y., Newark	State Custodial Asylum for Feeble-minded Women	Ethan A. Nevin, M.D.	1,050
N.Y., Randall's Island	New York School for Feeble-minded and Epileptic Children (supported by City of N.Y.)	J. F. Vavasour, M.D.	1,940
N.Y., Rome	Rome State Custodial Asylum	Charles Bernstein, M.D.	1,580
N.Y., Syracuse	Syracuse State Institution for Feeble-minded Children	O. H. Cobb, M.D.	607
N.Y., Thiells	Letchworth Village	F. J. Russell, M.D.	330
Ohio, Columbus	Institution for Feeble-minded	E. J. Emerick, M.D.	2,200
Oklahoma, Enid	Oklahoma Institute for Feeble-minded	W. L. Kendall, M.D.	400
Oregon, Salem	State Institution for Feeble-minded	J. N. Smith, M.D.	310
Pa., Elwyn	*Pennsylvania Training School for Feeble-minded Children	M. W. Barr, M.D.	1,075
Pa., Polk	Western Pa. State Institution for Feeble-minded Youth	J. M. Murdoch, M.D.	1,773
Pa., Spring City	E. Pa. State Institution for Feeble-minded and Epileptics	Wm. J. Steward, M.D.	1,159.
R.I., Slocum	Exeter School for Feeble-minded	Joseph H. Ladd, M.D.	330
S. Dakota, Redfield	State School and Home for the Feeble-minded	J. K. Kutnewsky, M.D.	303
Texas, Austin	State Colony for Feeble-minded	J. W. Bradfield, M.D.	—
Vermont, Brandon	State School for the Feeble-minded	Truman J. Allen, M.D.	171
Virginia, Maddison Heights	Virginia Colony for Feeble-minded Epileptics and State Epileptic Colony	A. S. Priddy, M.D.	112
Wash., Medical Lake	State Institution for Feeble-minded	Dr. S. C. Woodruff	600
Wis., Chippewa Falls	Wisconsin Home for Feeble-minded	A. W. Wilmarth, M.D.	1,160
Wisconsin, Union Grove	S. Wisconsin Home for Feeble-minded and Epileptics	Henry C. Werner, M.D.	300-1,476
Wyoming, Lander	W. State School for Defectives	J. Hoyt Hutchins, M.D.	100

* Institutions marked with asterisks were originally privately founded, but now contain many State-paid cases. Institutions specially designated as for epileptics, if not also described as for feeble-minded, are not included in this list.

APPENDIX C

SPEAKING EXERCISES

I. CONSONANTS.

<i>Sound.</i>	<i>Phonetic.</i>	<i>Common Object.</i>	<i>Part of Body, etc.</i>	<i>Part of Dress, etc.</i>
M.	Mam-ma	Mat, Man, Miss	Mouth, Muscle	Muff, Muffler, Mitten
P.	Pa-pa	Pen, Pin, Pipe	Palm (of hand)	Pin, Pocket
B.	Bab-ba	Bell, Box, Book	Bone, Bust, Brains	Bib, Bow
T.	Tat-ta	Table, Top, Tea	Toe, Tooth	Tie, Tape, Trousers
D.	Dad-da	Door, Doll, Desk	Dimple	Dress, Diadem
V.	Va-va	Velvet, View, Violet	Vein, Voice	Veil, Vest
F.	Fa-fa	Fan, Fire, Fish	Foot, Face, Finger	Fur, Frock, Flannel
L.	La-la	Lad, Lady, Lock	Lip, Limb, Leg	Lace, (E)lastic
R.	Ra-ree	Rag, Reel, Rail-road	Rib, (W)rist	Ribbon, Ring
S.	See-saw	Soap, Slate, Seat	Sole, Skin	Sock, Sash, Stocking
Z.	Za-zel	Zinc, Scissors	Hazel (Eyes)	Stays, Zone
Th.	The	Thimble, Thing	Thumb, Throat	Thread
Sh.	She	Shell, Shilling	Shoulders, Shin	Shoe, Shawl, Shirt
Ch.	Chick	Child, Chair	Chin, Chest, Cheek	Chain (of Watch)
J.	Jig	Ju-jube, Jug	Jaw, Joint	Jacket, Jewel
G (hard)	Gig	Girl, Gas, Gate	Gum, Gullet	Garter, Gaiter
K.	Cake	Cat, Kite, Colour	Calf, Cough	Coat, Cap, Collar
N.	Nanny	Net, Nut, (K)not	Nose, Nail, Neck	Necktie, (K)not

II. SIMPLE VOWEL SOUNDS.

<i>Vowel Sound.</i>	<i>Examples.</i>
A (open) = (Ah)	Father
A (broad) = (Aw)	All (<i>Awful</i>)
A (short) = Ä	Cap, Tap
A (long) = Ā	Cape, Tape
O (short) = Ö	Cot, Knot
O (long) = Ō	Coat, Note
OO (short) = (OO)	Foot, Wood
OO (long) = (ŌO)	Boot, Food
U (short) = Ü	Tun, Fun
U (long) = Ū	Tune, Fume
E (short) = Ē	Bed, Fed
E (long) = Ē	Bead, Feed
I (short) = Ī	Bit, Fit
I (long) = Ī	Bite, Fight
Aspirate H	Hat, Hall
Double Letters W, Y	Wall, You
Diphthongs, OI , OW	Oil, Owl

[Arranged by Dr. Shuttleworth for use at Royal Albert Asylum. Reprinted from his article on "Education of Imbeciles" in Dr. Hack Tuke's *Dictionary of Psychological Medicine*, by kind permission of Messrs. Churchill.]

The following phonetic phrases (from Dr. Wyllie's book) are serviceable for speech testing:—

1. (*Labials*) "Peter Brown made white wax."
2. (*Labio-dentals*) "Fine villages."
3. (*Linguo-dentals*) "Thinkest thou so, Zealot?"
4. (*Anterior linguo-palatals*) "She leisurely took down nine large roses."
5. (*Posterior linguo-palatals*) "Can Gilbert bring Loch Hourn youths?"

APPENDIX D.—LONDON COU
HARMOOD STREET SCHOOL, ELDER

MORNING, 9.30 TO 12.0.										
	Class No.	Sec. tion.	9.30 to 9.40.	9.40 to 10.0.	10.0.	10.0 to 10.30.	10.30 to 10.50.	10.50 to 11.5.	11.5 to 11.20.	11.20 to 11.40.
MONDAY	1	a b c d	Assembly, Registration, and Prayers	Scripture	Final Marking and Closing Registers	Arithmetic	Reading	Physical Exer.	Play-time	Recitation
	2			"		"	"	"		"
	3			"		"	"	"		"
	4			"		"	"	"		Word-building
	5			"		{	10.30 to 10.40 Speech-training	10.40 to 11.5 Reading }		"
	6									
	7									
	8									
	9					Manual Work {	Ele mentary Wood	work		Wood
	10					Ad vanced	"	"		"
	11					Ta iloring	"	"		Tailor
	12					Bo otmaking	"	"		Bootm
TUESDAY	1	a b c d	Assembly, Registration, and Prayers	Scripture	Final Marking and Closing Registers	Arithmetic	Reading	Physical Exer.	Play-time	Oral Comp.
	2			"		"	"	"		"
	3			"		"	"	"		"
	4			"		"	"	"		"
	5			"		{	10.30 to 10.40 Speech-training	10.40 to 11.5 Reading }		"
	6									
	7									
	8									
	9					Manual Work {	Ele mentary Wood	work		Wood
	10					Ad vanced	"	"		"
	11					Ta iloring	"	"		Tailor
	12					Bo otmaking	"	"		Bootm
WEDNESDAY	1	a b c d	Assembly, Registration, and Prayers	Scripture	Final Marking and Closing Registers	Arithmetic	Reading	Physical Exer.	Play-time	Recitation
	2			"		"	"	"		"
	3			Hymns		"	"	"		"
	4			"		"	"	"		Geography
	5			"		{	10.30 to 10.40 Speech-training	10.40 to 11.5 Reading }		Recitation
	6									
	7									
	8									
	9					Manual Work {	Ele mentary Wood	work		Wood
	10					Ad vanced	"	"		"
	11					Ta iloring	"	"		Tailor
	12					Bo otmaking	"	"		Bootm
THURSDAY	1	a b c d	Assembly, Registration, and Prayers	Scripture	Final Marking and Closing Registers	Arithmetic	Reading	Physical Exer.	Play-time	Word-building
	2			"		"	"	"		"
	3			"		"	"	"		"
	4			"		"	"	"		Oral Comp.
	5			"		{	10.30 to 10.40 Speech-training	10.40 to 11.5 Reading }		"
	6									
	7									
	8									
	9					Manual Work {	Ele mentary Wood	work		Wood
	10					Ad vanced	"	"		"
	11					Ta iloring	"	"		Tailor
	12					Bo otmaking	"	"		Bootm
FRIDAY	1	a b c d	Assembly, Registration, and Prayers	Scripture	Final Marking and Closing Registers	Arithmetic	Reading	Physical Exer.	Play-time	Oral Comp.
	2			"		"	"	"		"
	3			"		"	"	"		"
	4			"		"	"	"		Recitation
	5			"		{	10.30 to 10.40 Speech-training	10.40 to 11.5 Reading }		"
	6									
	7									
	8									
	9					Manual Work {	Ele mentary Wood	work		Wood
	10					Ad vanced	"	"		"
	11					Ta iloring	"	"		Tailor
	12					Bo otmaking	"	"		Bootm

MENTALLY DEFICIENT DEPARTMENT.

AFTERNOON, 1.30 TO 4.0.						
	1.35 to 2.10.	2.10 to 2.40.	2.40 to 3.15.	3.15 to 3.30.	3.30 to 3.55.	3.55 to 4.0.
Assembly and Registration, 1.30 to 1.35. Final Marking and Closing Registers, 1.50	Arithmetic " " " " " } 1.35 to 2.5	Reading " " Woodwork " Drawing, 2.50 Physical Exer., 2.5 to 2.20	Drawing (pattern) " " Physical Exer., 2.50 to 3.15 Card-board, 2.20 to 3.15	Play-time	History " " Singing " " Reading	Dismissal
		Woodwork (elementary) " (advanced) Tailoring Bootmaking			— — — —	
	Arithmetic " " Reading " } 1.35 to 2.5	Reading " " Drawing (colour) Physical Exer., 2.5 to 2.20	Organised Games Drawing (woodwork) Drawing (colour) Physical Exer., 2.50 to 3.15 Drawing (colour) (Swimming in summer substituted.)	Play-time	History " " " " Singing	
		Woodwork (elementary) " (advanced) Tailoring Bootmaking			— — — —	
	Arithmetic " " " " " } 1.35 to 2.5	Reading " " Card-board, 2.5 to 2.50 Physical Exer., 2.5 to 2.20	Drawing (woodwork) " (colour) Physical Exer., 2.50 to 3.15 Object Drawing (Swimming in summer substituted.)	Play-time	Story-telling " " Reading "	
		Woodwork (elementary) " (advanced) Tailoring Bootmaking			— — — —	
	Arithmetic " " Reading " } 1.35 to 2.5	Reading " " " " Ruler Drawing, 2.5 to 2.50 Physical Exer., 2.5 to 2.20	Drawing (colour) Organised Game Drawing (woodwork) Physical Exer., 2.50 to 3.15 Ruler Drawing, 2.20 to 3.15	Play-time	Biography " " Object Lesson History Story-telling	
		Woodwork (elementary) " (advanced) Tailoring Bootmaking			— — — —	
	Arithmetic " " " " " } 1.35 to 2.5	Reading " " " " Object Drawing, 2.5 to 2.50 Organ. Game, 2.5 to 2.20	Memory Drawing " " Organised Games Organ. Games, 2.50 to 3.15 Object Drawing	Play-time	Object Lesson " " Singing " " Object Lesson	
		Woodwork (elementary) " (advanced) Tailoring Bootmaking			— — — —	

APPENDIX D (Continued).—LONDON
HARMOOD STREET SCHOOL

MORNING.											
	Class No.	Standard or Year.	9.30 to 9.40.	9.40 to 9.55.	9.55 to 10.0.	10.0 to 10.20.	10.20 to 10.30.	10.30 to 10.50.	10.50 to 11.5.	11.5 to 11.30.	11.30 to 11.55.
MONDAY	I		Assembly, Registration, and Prayers	Scripture Story	Final Marking and Closing Registers	Number	Speech-training	Reading	Recreation	Physical Exercises	Writing
	II			Scripture Story		Number		Reading		Physical Exercises	Oral Lesson
	III			Scripture Story		Number		Physical Exercises		Reading	Writing
	IV (Girls)			Scripture Story		Physical Exercises		Number		Reading	Writing
TUESDAY	I			Hymns or Repetition		Number	Speech-training	Physical Exercises	Recreation	Oral Lesson	Singing
	II			Hymns or Repetition		Number		Reading		Physical Exercises	Writing
	III			Hymns or Repetition		Singing		Number		Reading	Writing
	IV (Girls)			Hymns or Repetition		Number		Physical Exercises		Reading	Singing
WEDNESDAY	I			Scripture Story		Number	Speech-training	Physical Exercises	Recreation	Reading	Writing
	II			Scripture Story		Singing		Number		Physical Exercises	Reading
	III			Scripture Story		Number		Physical Exercises		Reading	Oral Lesson
	IV (Girls)			Scripture Story		Physical Exercises		Number		Reading	Writing
THURSDAY	I			Hymns or Repetition		Number	Speech-training	Physical Exercises	Recreation	Reading	Oral Lesson
	II			Hymns or Repetition		Singing		Number		Oral Lesson	Reading
	III			Hymns or Repetition		Reading		Number		Physical Exercises	Writing
	IV (Girls)			Hymns or Repetition		Reading		Physical Exercises		Number	Oral Lesson
FRIDAY	I			Commandments		Number	Speech-training	Physical Exercises	Recreation	Reading	Singing
	II			Hymns or Repetition		Number		Reading		Physical Exercises	Writing
	III			Hymns or Repetition		Number		Physical Exercises		Letter Game	Oral Lesson
	IV (Girls)			Hymns or Repetition		Physical Exercises		Number		Reading	Singing

COUNTY COUNCIL TIME TABLE, 1921.

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JUNIOR MENTALLY DEFICIENT DEPARTMENT.

AFTERNOON.							
1.30 to 1.35.		1.45.	1.35 to 2.30.	2.30 to 2.45.	2.45 to 3.0.	3.0 to 3.30.	
Assembly and Registration		Final Marking and Closing Registers	Rug Making Modelling Colour or Bead Work Needlework	Recreation	Recitation	Ruler Drawing Action Songs Organised Games Colour Work	Prayers and Dismissal
			Modelling Colour Work Paper Cutting Canvas Work	Recreation	Recitation	Organised Games Story or Ruler Drawing Singing Optional	
			Paper Cutting Embroidery Knitting or Embroidery Needlework	Recreation	Recitation	History Story Organised Games Story Lesson Dancing	
			Cane Weaving Paper Cutting Ruler Drawing Cutting Out	Recreation	Recitation	Musical Drill " " Organised Games Story Lesson	
			Drawing Knitting Modelling Knitting	Recreation	Recitation	Story Lesson " " Game or Story Game or Dancing	

MORNING.

	Class No.	Standard or *Year.	9.30 to 9.50.	9.50 to 10.0.	10.15.	10.0 to 10.30.	10.30 to 11.0.	11.0 to 11.15.	11.15 to 11.30.	11.30 to 12.0.
MONDAY	1 2 3 4 5 6	A B C D E F	Assembly, Registration, Prayers, and Scripture.	Recitation	Final Marking and Closing Registers	Cookery .. Arithmetic	..... and Reading	Physical Exercises	Recreation	Laundry Writing
				"		"	"			"
				"		"	"			"
				"		"	Writing			"
				"		Needlework	..... in .. Craft	Physical Exercises		Reading Room
TUESDAY	1 2 3 4 5 6	A B C D E F		Recitation		Arithmetic	Reading	Physical Exer.		Writing
				"		Cookery ..	..... and			Laundry
				"		Arithmetic	Reading			Writing
				"		"	Writing			"
				"		Needlework	..... in .. Craft	Physical Exercises	Recreation	Reading Room
WEDNESDAY	1 2 3 4 5 6	A B C D E F		Recitation		Arithmetic	Reading	Physical Exercises		Writing
				"		"	"			"
				"		Cookery ..	..... and			Laundry
				"		Arithmetic	Reading			Writing
				"		"	"			General
				"		Needlework	..... in .. Craft	Physical Exercises		Knownled Room
THURSDAY	1 2 3 4 5 6	A B C D E F		Enunciation		Arithmetic	Reading	Physical Exercises		Writing
				"		"	"			"
				"		"	"			"
				"		Cookery ..	..... and			Laundry
				"		Arithmetic	Writing			Reading
				"		Needlework	..... in .. Craft	Physical Exercises		Room
FRIDAY	1 2 3 4 5 6	A B C D E F		Recitation		Arithmetic	General Knowledge	Physical Exercises		Writing
				"		"	"			"
				"		"	"			"
				"		"	"			"
				"		"	"			"
				"		Needlework	Writing in .. Craft	Physical Exercises	Recreation	Reading Room

* On Fridays the bigger girls of D and E take Cookery and Laundry. Classes

COUNTY COUNCIL TIME TABLE, 1921.

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SENIOR GIRLS' DEPARTMENT.

AFTERNOON.								
		1.45.	1.30 to 2.30.	2.30 to 2.45.	2.45 to 3.0.	3.0 to 3.30.	3.30 to 4.0.	4.0.
Assembly and Registration	Final Marking and Closing Registers		Garments Cookery .. Specimen or Mending Fancy Work Needlework	Singing and .. Singing " .. in .. Craft	Crochet Laundry Pattern Drawing.. Crochet " Room	Brush Work and Cutting Crochet "	Prayers and Dismissal
			Cookery .. Needlework Garments Needlework Needlework	.... and .. Singing " " .. in .. Craft	....	Laundry Crochet Games " Room	Crochet Painting Drawing "
			Specimen or Mending Fancy Work Needlework Cookery .. Specimen Needlework Needlework	Singing " " and .. Singing .. in .. Craft	....	Pattern Drawing.. Mental Tests or General Knowledge Crochet Laundry Pattern Drawing.. Room	and Cutting Drawing Crochet and Cutting
			Fancy Work Specimen or Mending Cookery .. Needlework Needlework	Singing " and .. Singing .. in .. Craft	....	Games " Laundry Pattern Drawing Brush Work Room	Crochet Brush Drawing and Cutting General Knowledge
			Needlework Garments Fancy Work Needlework Needlework	Words of Songs " " " .. in .. Craft		Drawing Pattern Drawing Mental Tests or General Knowledge Mental Tests or General Knowledge Brush Work Room	Mental Tests or General Knowledge and Cutting Drawing Brush Drawing General Knowledge	

graded in the morning according to capability in Reading, Writing, and Arithmetic.

APPENDIX E

MENTAL DEFICIENCY ACT, 1913, S. 3, 5, ETC.

[Form P₄.]

MEDICAL CERTIFICATE.

In the matter of A.B. _____, of _____,
in the County(*) of _____, an alleged defective.

I, the undersigned, K.L. _____, do hereby certify
as follows:

1. I am a person registered under the Medical Acts and I am in the actual practice of the medical profession [and approved by the Local Authority for the County (*) of *or* by the Board of Control, for the purpose of giving medical certificates under the above Act] [and the usual medical attendant of the said A.B.]

2. On the _____ day of _____, (†) _____ at _____, in the County (*) of _____, separately from any other practitioner, I personally examined the said A.B. _____ and satisfied myself that he was _____.(†)

3. I formed this conclusion on the following grounds, viz.:
(a) Facts observed by myself—

(i.) at the time of examination;
(ii.) previously to examination. (§)

(b) Facts communicated by others.

4. The said A.B. appeared to me to be [or not to be] in a fit condition of bodily health to be removed.

Dated

Signed
(11)

* Or County Borough.

† The examination must have taken place not more than seven clear days before the date of the presentation of the petition or reception of patient.

† State whether an idiot, an imbecile, a feeble-minded person, or a moral imbecile. If the defective be certified otherwise than as an *idiot* or *imbecile*, the sanction of a judicial authority is also required (S. 3).

§ Give date when observed.

Insert postal address.

APPENDIX F

BINET-SIMON TESTS OF INTELLIGENCE

(Adapted from Dr. H. H. Goddard's modification of the latest series, 1911.)

THREE YEARS.

1. Points to nose, eyes, mouth.
2. Repeats two numbers, 7 2.
3. Enumerates objects in a picture.
4. Knows Christian and surname.
5. Repeats "It is cold and snowing hard."

FOUR YEARS.

1. Knows sex.
2. Recognises key, knife, penny.
3. Repeats three numbers, 7 4 8.
4. Points to longer of two lines.

FIVE YEARS.

1. Compares 3 and 12 grammes (two weights identical in shape, size, and appearance).
2. Copies a square.
3. Repeats "His name is John. He is a very good boy."
4. Counts four pennies.
5. Reconstructs an oblong card cut diagonally into two.

SIX YEARS.

1. Knows whether morning or afternoon.
2. Defines fork, chair, table, horse, mother.
3. Puts key on chair; shuts door; brings box (three simultaneous commissions).
4. Shows right hand, left ear.
5. Chooses prettier of two faces,

SEVEN YEARS.

1. Counts thirteen pennies placed in a row.
2. *Describes* pictures.
3. Sees picture lacks eyes, nose, mouth, arms.
4. Copies a diamond.
5. Recognises and names, red, blue, green, yellow.

EIGHT YEARS.

1. States differences between butterfly and fly, wood and glass, paper and cloth, cake and bread, etc.
2. Counts backwards from 20 to 1.
3. Repeats days of week.
4. Knows value of six postage stamps (1d., 1d., 1d., 2d., 2d., 2d.).
5. Repeats 4 7 3 9 5.

NINE YEARS.

1. Gives change out of shilling.
2. Gives definitions, superior to use, of common objects.
3. Knows date.
4. Repeats months in order.
5. Arranges five weights in order (each differs by 3 grammes, though identical in shape, size, and appearance).

TEN YEARS.

1. Knows money ($\frac{1}{2}$ d., 1d., 3d., 6d., 1s., 2s., 2s. 6d., 10s., £1).
2. Draws two designs from memory (a prism and a Greek moulding).
3. Repeats six figures (6 5 4 7 2 6—2 7 4 6 8 1—9 4 1 7 3 8) (one correct).
4. Comprehends appropriate action in case of (a) missed train; (b) accidentally struck; (c) broken something (2 out of 3).
Or in case of (a) starting late to school; (b) before taking part in important affair; (c) excuse of wrong committed in anger; (d) insufficient information; (e) actions *v.* words (3 out of 5).
5. Makes sentence containing three given words. (May be co-ordinated, containing two ideas.)

ELEVEN YEARS.

1. Sees absurdity in statements—*e.g.*, "I have three brothers—Paul, Ernest, and myself."
2. Makes single sentence containing three given words. (Only one idea.)
3. Says sixty words in three minutes.
4. Gives three rhymes to Day, Spring, Mill.
5. Rearranges the disordered words of three simple sentences (2 out of 3).

TWELVE YEARS.

1. Repeats seven figures.
2. Defines Charity, Justice, Goodness, Truth, Pity, etc.
3. Repeats "I saw in the street a pretty little dog. He had curly brown hair, short legs, and a long tail."
4. Resists suggestion made by lines of different lengths.
5. Explains incomplete account of incidents.

FIFTEEN YEARS.

1. Interprets pictures.
2. Tells time indicated by interchange of clock hands at 6.20, 2.56.
3. Writes in a simple code previously explained.
4. Gives opposites of seventeen out of twenty words—*e.g.*, Good, Tall.

ADULT.

1. Result of cutting out a triangle from edge of twice folded square.
2. Result of special placing of one half of an oblong.
3. Differences between pleasure and honour, poverty and misery, anger and disdain.
4. Differences between a King and a President.
5. Gives sense of a selection read.

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ADDENDUM

SEVENTH ANNUAL REPORT OF THE BOARD OF CONTROL, FOR 1920*

(PUBLISHED SEPTEMBER 20, 1921).

The above Report, for the year 1920, having appeared during the later stage of the passage of this work through the press, we take advantage of a little vacant space to present our readers with a few particulars drawn from the twenty-one pages devoted therein to the subject of Mental Deficiency. The Board refer to "a regrettable check in the progress of the work under the Mental Deficiency Act, for although there are this year 1,897 more patients under care"—12,026 *being the total of mental defectives officially registered*—"these numbers are insignificant if we consider them in relation to the numbers who are still in urgent need of protection and help." Disappointment is expressed that after the drawbacks of the war, it has proved necessary again to restrict, owing to the urgent need for national economy, the promising activities of many local authorities in the direction of more adequate provision for mentally defective cases, and that "the Board has reluctantly been obliged to inform Local Authorities that for the present no new schemes can be accepted by the Minister of Health" (with whose department the Board of Control has been associated by Order in Council since May, 1920).

The Board very forcibly points out the evils likely to result, especially under the present troubled conditions of the community, from a postponement of adequate provision for defectives; and we may mention that it has elsewhere† been very strongly contested whether any true economy will be effected by parsimonious dealings in connection with the administration of the Mental Deficiency Act. The Board

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† See letter to *Times*, November 12, 1921, by Leslie Scott, K.C., M.P.

insists on the importance of Local Authorities continuing to carry out their primary duties of ascertainment, so as to be in a position to act with promptitude when the present vexatious restrictions are withdrawn.

We subjoin two interesting tables from the Report elucidating the financial and institutional statistics of the years 1920-21.

TABLE I.

1. GRANTS TO LOCAL AUTHORITIES (SECTION 47).

Year ending 31st March,

	<u>1920</u>			<u>1921</u>		
Number of Local Authorities who received grants	110			120		
Total amounts paid on behalf of defectives ..	£	s.	d.	£	s.	d.
	108,243	9	5	199,857	0	1

2. CONTRIBUTIONS TOWARDS EXPENSES OF SOCIETIES.
(SECTION 48).

Year ending 31st March,

	<u>1920</u>			<u>1921</u>		
Number of Societies who received grants ..	26			31		
Total amounts paid ..	£	s.	d.	£	s.	d.
	3,953	11	8	6,800	0	0

3. GRANTS FOR RESEARCH (SECTION 41 [p]).

(Dr. D. Orr, Sir F. W. Mott, M.D., Dr. G. A. Watson, Miss L. G. Fildes, M.A., Dr. J. F. E. Prideaux, Cardiff Borough Mental Hospital).

Year ending 31st March,

<u>1920</u>	<u>1921</u>
£1,500	£1,700

TABLE II.—SUMMARY OF MENTALLY DEFECTIVE PATIENTS ON JANUARY 1, 1921.
(REGISTERED BY THE BOARD OF CONTROL.) [Abridged]

<i>Where Maintained.</i>	<i>Received under Mental Deficiency Act, 1913.</i>			<i>Received outside Mental Deficiency Act, 1913.</i>			<i>Total of all Mental Defectives.</i>		
	M. 138	F. 138	Total. 276	M. —	F. —	Total. —	M. 138	F. 138	Total. 276
In State Institutions (2*) ..	..	..	..	..	..	..	..	..	..
„ Certified Institutions (65*) ..	2,650	2,901	5,551	702	1,168	1,870	3,352	4,069	7,421
„ Certified Institutions under S. 37 (142*) (Poor Law)	1,518	1,916	3,434	—	—	—	1,518	1,916	3,434
„ Certified Houses (11*) ..	123	101	224	20	44	64	143	145	288
„ Approved Homes (19*) ..	—	—	—	86	170	256	86	170	256
Under Guardianship or Notified ..	90	189	279	24†	48†	72†	114	237	351
Total	4,519	5,245	9,764	832	1,430	2,262	5,351	6,675	12,026

* Number of establishments in active existence.

† Notified cases (see Sec. 51).

